20th HFSP AWARDEES MEETING

an online event

5 – 8 July 2021

Please note that all times correspond to Central European Summer Time (CEST).

15 minutes are allocated to each oral presentation as follows:

- 10 minutes for the talk
- 3 minutes for Q&A
- 2 minutes transition to the next talk.

Presenting authors are listed in bold.

Each meeting day ends with a 5-minute moderated conclusion and an invitation for interactive participant feedback.

Monday, 5 July

Oral session 1

11:00-11:05 **Introduction**

11:05-11:20 **Towards real time information processing systems based on artificial allosteric proteins**
Kirill Alexandrov, Molecular Engineering Group, Queensland University of Technology, Brisbane, Australia
Evgeny Katz, Dept. of Chemistry and Biomolecular Science, Clarkson University, Potsdam, USA
Program Grant 2018

11:20-11:35 **What do we know about osteoderms in lizards?**
Arkhat Abzhanov, Dept. of Life Sciences, Imperial College London, UK
Anthony Herrel, Dept. Adaptations du Vivant, Muséum National d'Histoire Naturelle, Paris, France
Mehran Moazen, Dept. of Mechanical Engineering, University College London, UK
Matt Vickaryous, Dept. of Biomedical Sciences, University of Guelph, Canada
Program Grant 2019

11:35-11:50 **A PURE-ly synthetic ribosome biogenesis in DNA compartments on a chip**
Yoshihiro Shimizu, Laboratory of Cell-Free Protein Synthesis, RIKEN Center for Biosystems Dynamics Research, Suita, Japan
Roy H. Bar-Ziv, Dept. of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel
Program Grant 2017

11:50-12:05 **Tension-driven multi-scale mechanical self-organisation in human stem cell-derived muscle**
Benjamin M. Friedrich, Physics of Life, Technical University, Dresden, Germany
Olivier Pourquie, Dept. of Pathology, Brigham and Women's Hospital and Dept. of Genetics, Harvard Medical School, Boston, USA
Frank Schnorrer, IBDM, Aix Marseille University, Turing Center for Living Systems, Marseille, France
Program Grant 2018

12:10-12:25 ***Break***

Oral session 2

12:25-12:40 **Seeing voices: the role of multimodal cues in vocal learning**
Wouter Halfwerk, Dept. of Ecological Sciences, Vrije Universiteit Amsterdam, the Netherlands
Katharina Riebel, Dept. of Biology, Leiden University, the Netherlands
Constance Scharf, Dept. of Biology, Freie Universitaet Berlin, Germany
Program Grant 2016

12:40-12:55 **Exploring adaptive immunity to viruses in arboviral vectors**
Mariangela Bonizzoni, Dept. of Biology and Biotechnology, University of Pavia, Italy
Jayme Souza-Neto, Institute of Biotechnology, Sao Paulo University, Botucatu, Brazil
Ronald Van Rij, Dept. of Medical Microbiology, Radboud University Medical Center, Nijmegen, the Netherlands
Program Grant 2017

12:55-13:10 **How do we stop eating when we are (mechanically) full?**
Sung-Yon Kim, Institute of Molecular Biology and Genetics, Seoul National University, South Korea
Ofer Yizhar, Dept. of Neurobiology, Weizmann Institute of Science, Rehovot, Israel
Ido Amit, Dept. of Immunology, Weizmann Institute of Science, Rehovot, Israel
Young Investigator Grant 2017

13:10-13:25 **Antibody display of cell surface receptor Tetraspanin12 and SARS-CoV-2 spike protein**
Tao-Hsin Chang, Dept. of Molecular Biology and Genetics, Johns Hopkins Medical School and Howard Hughes Medical Institute, Baltimore, USA
Long-Term Fellow 2017

13:30-13:45 ***Break***

Opening Ceremony

13:45-13:50 **Introduction**

13:50-14:05 **Official welcome**
HFSPO President Shigekazu Nagata

14:05-14:25 **Passing the baton**
outgoing HFSPO Secretary-General Warwick Anderson
to incoming Secretary-General Pavel Kabat

14:25-15:00 **The 2021 HFSP Nakasone Award**

Introduction
HFSPO President Shigekazu Nagata

Laudation
HFSPO Secretary-General Pavel Kabat

Presentation of certificate and medal

Meet the 2021 winners
Anthony Hyman and Clifford Brangwynne

Poster session 1

15:00-16:05 **Poster presentations**

Tuesday, 6 July

Oral session 3

11:00-11:05 **Introduction**

11:05-11:20 **Mechanism for the initiation of cellular protrusions**
Patricia Bassereau, Physical Chemistry Curie, Curie Institute, Paris, France
Pekka Lappalainen, Institute of Biotechnology, University of Helsinki, Finland
Gregory A. Voth, Dept. of Chemistry, The University of Chicago, USA
Program Grant 2016

11:20-11:35 **The physical and cellular mechanism of structural color change in zebrafish**
Dvir Gur, Dept. of Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel
Cross-Disciplinary Fellow 2018

11:35-11:50 **Detecting inequity in dendritic cells through bio-inspired synthetic T cells**
Maartje Bastings, Programmable Biomaterials Laboratory, École Polytechnique Fédérale de Lausanne, Switzerland
Ralf Jungmann, Dept. of Physics, Ludwig Maximillian University, Martinsreid, Germany
Ian Parish, Cancer Immunology Program, Peter MacCallum Cancer Institute, Melbourne, Australia
Young Investigator Grant 2018

11:50-12:05 **Strategies for DNA readout in a chromatinized genome**
Alicia K. Michael, Dept. of Quantitative Biology, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland
Long-Term Fellow 2018

12:10-12:25 ***Break***

Oral session 4

12:25-12:40 **Nuclear RNA concentration coordinates RNA production with cell size in human cells**
Scott Berry, Dept. of Molecular Life Sciences, University of Zurich, Switzerland
Long-Term Fellow 2017

12:40-12:55 **Real time nucleus dynamics in the arabidopsis single root hair**
Atef Asnacios, Laboratoire Matières et Systèmes Complexes, Université Paris-Diderot, Paris, France
Marie-Edith Chabouté, Institut de Biologie Moléculaire des Plantes, Strasbourg, France
Henrik Jönsson, Sainsbury Laboratory, University of Cambridge, UK
Kentaro Tamura, Dept. of Environmental and Life Sciences, University of Shizuoka, Japan
Program Grant 2018

12:55-13:10 **Decoding the biomechanics of flight-tone based acoustic communication in mosquitoes**
Rajat Mittal, Dept. of Mechanical Engineering, Johns Hopkins University, Baltimore, USA
Gabriella Gibson, Dept. of Agriculture, Health and Environment, University of Greenwich, London, UK
Program Grant 2019

13:10-13:25 **Towards a synthetic, optogenetic neurotransmitter system**
Michael Krieg, Neurophotonics & Mechanical Systems Biology Research Group, The Institute of Photonic Sciences - ICFO, Castelldefels, Barcelona, Spain
Career Development Award 2018

13:30-13:45 ***Break***

Poster session 2

13:45-14:50 **Poster presentations**

Oral session 5

14:50-15:05 **Morphogen gradient scaling by recycling of intracellular molecules**
Zena Hadjivasiliou, Dept. of Biochemistry, University of Geneva, Switzerland and Physics of Biology, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany
Long-Term Fellow 2017

15:05-15:20 **Building brain cellular complexity using stem-cell based technology**
Abed A. Mansour, Dept. of Medical Neurobiology, The Institute for Medical Research (IMRIC) at The Hebrew University, Jerusalem, Israel and Laboratory of Genetics, The Salk Institute for Biological Studies, La Jolla, USA
Long-Term Fellow 2015

15:20-15:35 **Socializing with the neighbors: lymphatic niche synchronizes stem cell fate decision and tissue regeneration**
Shiri Gur-Cohen, The Rockefeller University, New York, USA
Long-Term Fellow 2017

15:35-15:50 **The physical basis of autophagosome biogenesis**
Gerhard Hummer, Theoretical Biophysics, Max Planck Institute of Biophysics, Frankfurt, Germany
James H. Hurley, Molecular and Cell Biology, University of California, Berkeley, USA
Sascha Martens, Max F. Perutz Laboratories, University of Vienna, Austria,
Tamotsu Yoshimori, Dept. of Genetics, Osaka University, Japan
Program Grant 2017

Wednesday, 7 July

Oral session 6

11:00-11:05 **Introduction**

11:05-11:20 **Robust circadian rhythms against stochastic spatial intracellular kinetics**
Jae Kyoung Kim, Dept. of Mathematical Sciences, KAIST, Daejeon, South Korea
Young Investigator Grant 2017

11:20-11:35 **A fast lock-on system for high resolution videography of freely moving insects**
Tat Thang Vo-Doan, Institute of Biology I, University of Freiburg, Germany
Cross-Disciplinary Fellow 2019

11:35-11:50 **Collective behaviour in the real world**
Nicholas Ouellette, Dept. of Civil and Environmental Engineering, Stanford University, USA
Alex Thornton, Centre for Ecology and Conservation, University of Exeter, Penryn, UK
Richard Vaughan, School of Computing Science, Simon Fraser University, Burnaby, Canada
Program Grant 2017

11:50-12:05 **Tasting from within? A novel sensory system links motor circuits to spine morphogenesis and innate immunity**
Francois Gallaire, École Polytechnique Fédérale de Lausanne, Switzerland
Maria Lehtinen, Dept. of Pathology, Boston Children's Hospital, Boston, USA
Claire Wyart, Brain and Spine Institute (ICM), Paris, France
Program Grant 2018

12:10-12:25 ***Break***

Oral session 7

12:25-12:40 **Dissecting polarity formation in the Drosophila oocyte**
Sebastian Maurer, Cell and Developmental Biology, Centre for Genomic Regulation, Barcelona, Spain
Ivo A. Telley, Physical Principles of Nuclear Division Lab, Instituto Gulbenkian de Ciência, Oeiras, Portugal
Young Investigator Grant 2016

12:40-12:55 **Local protein synthesis maintains and remodels the synaptic proteome**
Chao Sun, Dept. of Synaptic Plasticity, Max Planck Institute for Brain research, Frankfurt am Main, Germany
Cross-Disciplinary Fellow 2019

12:55-13:10 **Checkpoints in cellular programming during root regeneration: a single cell resolution**
Bruno Guillotin, Center for Genomics and Systems Biology, New York University, USA
Long-Term Fellow 2018

13:10-13:25 **Bacteria exploit physics to resist starvation**
Ricard Alert, Lewis-Sigler Institute for Integrative Genomics and Princeton Center for Theoretical Science, Princeton University, USA
Cross-Disciplinary Fellow 2018

13:30-13:45 ***Break***

Poster session 3

13:45-14:50 **Poster presentations**

Oral session 8

14:50-15:05 **Humans monitor learning progress in curiosity-driven exploration**
Jacqueline Gottlieb, Dept. of Neuroscience and The Kavli Institute for Brain Science, Columbia University, New York, USA
Pierre-Yves Oudeyer, Flowers Lab, INRIA, Bordeaux, France
Program Grant 2016

15:05-15:20 **Building a breeder: morphological and genomic consequences of social status in cooperatively breeding mammals**
Luis Barreiro, Dept. of Medicine, University of Chicago, USA and Dept. of Genetics, CHU-Ste Justine, Montreal, Canada
Tim Clutton-Brock, Dept. of Zoology, University of Cambridge, UK
Sayan Mukherjee, Dept. of Statistical Science, Mathematics and Computer Science, Duke University, Durham, USA
Jenny Tung, Dept. of Evolutionary Anthropology, Duke University, Durham, USA
Program Grant 2017

15:20-15:35 **Cytoskeletal networks drive shape-changes in liquid droplets**
Itamar Kolvin, Dept. of Physics, University of California, Santa Barbara, USA
Cross-Disciplinary Fellow 2017

15:35-15:50 **Distinct endocytic mechanisms for antigen acquisition from live and dying cells**
Nina K. Serwas, Dept. of Pathology, University of California, San Francisco, USA
Long-Term Fellow 2018

Thursday, 8 July

Oral session 9

11:00-11:05 **Introduction**

11:05-11:20 **The mystery of intracellular heat**
Taras Plakhotnik, School of Mathematics and Physics, The University of Queensland, Brisbane, Australia
Madoka Suzuki, Institute for Protein Research, Osaka University, Japan
Program Grant 2018

11:20-11:35 **Human fetal immunity and microbial priming during early development**
Archita Mishra, Singapore Immunology Network (SIgN), Agency for Science, Technology and Research, Singapore
Long-Term Fellowship 2019

11:35-11:50 **Spatial representation in auditory cortical axonal projections onto visual cortex**
Camille Mazo, Dept. of Neuroscience, Champalimaud Center for the Unknown, Lisbon, Portugal
Long-Term Fellow 2018

11:50-12:05 **Bats use predictive strategies for target interception**
Angeles Salles, Dept. of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, USA
Long-Term Fellow 2018

12:10-12:25 ***Break***

Poster session 4

12:25-13:30 **Poster presentations**

Oral session 10

13:30-13:45 **How treefrogs became green: from serpins biology to blood metabolism**
Carlos Alberto Taboada, Dept. of Biology, Duke University, Durham, USA
Long-Term Fellow 2018

13:45-14:00 **Animals, models and robots show tight interactions between central and peripheral control mechanisms to generate adaptive and robust amphibious locomotion**
Akio Ishiguro, Research Institute of Electrical Communication, Tohoku University, Japan
Auke J. Ijspeert, Biorobotics Laboratory, Institute of Bioengineering, École Polytechnique Fédérale de Lausanne, Switzerland
Emily M. Standen, Dept. of Biology, University of Ottawa, Canada
Program Grant 2017

14:00-14:15 **Injury induces wild-type cell proliferation to suppress oncogenic RAS cells**
Sara Gallini, Dept. of Genetics, Yale University, New Haven, USA
Long-Term Fellow 2017

14:15-14:30 **Inhibition of amyloid formation of the nucleoprotein of SARS-CoV-2**
Einav Tayeb-Fligelman, Dept. of Chemistry and Biochemistry and Biological Chemistry, University of California, Los Angeles, USA
Long-Term Fellow 2018

14:35-14:50 ***Break***

Invited lecture

14:50-14:55 **Introduction**

14:55-15:25 **Presenting ELIXIR and the Global Biodata Coalition (GBC)**
Niklas Blomberg, Director ELIXIR, Hinxton, Cambridge, UK

15:25-15:40 **Closing remarks**
HFSPO Secretary-General Pavel Kabat