

**Evolutionary Systems Biology
11-13 April 2018**

**Wellcome Genome Campus,
Hinxton, Cambridge, UK**

Conference Programme

Wednesday, 11 April 2018

12:00-13:20 **Registration with lunch**

13:20-13:30 **Welcome and Introductions**

Ben Lehner, CRG, Spain

13:30-14:30 **Keynote Lecture**

Chair: Ben Lehner, CRG, Spain

Adapting to different winters: non-coding transcripts and epigenetic switches at FLC

Caroline Dean

John Innes Centre, UK

14:30-15:30 **Session 1: One Gene**

Chair: Patricia Wittkopp, University of Michigan, USA

14:30 Fitness landscapes in an evolutionary context

Fyodor Kondrashov

Center for Genomic Regulation, Barcelona, Spain

15:00 Signatures of response in immune repertoires

Aleksandra Walczak

École Normale Supérieure, France

15:30-16:00 **Afternoon Tea**

16:00-17:30 **Session 2: Mutation and sex**

Chair: Patricia Wittkopp, University of Michigan, USA

16:00 The evolution of mutation rate and the role of population size on the fate of indirectly selected alleles

Daniel Weinreich

Brown University, USA

16:30 Genetic interactions and evolutionary advantages of sex

Christina Burch

University of North Carolina at Chapel Hill, USA

- 17:00 Irreversibility in the evolution of a higher order stoichiometry in citrate synthase
Georg Hochberg
University of Chicago, USA
- 17:15 The adaptive potential of naturally-occurring proto-genes
Anne-Ruxandra Carvunis
University of Pittsburgh, USA
- 17:30-18:00 **Lightning talks**
- 18:00-19:30 **Poster Session 1 (odd numbers) with drinks reception**
- 19:30 Dinner

Thursday, 12 April 2018

- 09:00-10:30 **Session 3: Few Genes**
Chair: Marie-Anne Félix, Institute of Biology of the Ecole Normale Supérieure, France
- 09:00 The yeast genotype-phenotype map in dynamic environments
Gaël Yvert
École Normale Supérieure de Lyon, France
- 09:30 Paralogous interference in cellular networks
Christian Landry
Université Laval, Canada
- 10:00 The mechanistic basis of epistatic variety in a metabolic pathway uncovered by high-resolution fitness interaction mapping
Harry Kemble
IAME, INSERM U1137, France
- 10:15 Diversification of a receptor-ligand interaction: how do new self-incompatibility alleles arise?
Vincent Castric
CNRS Lille, France
- 10:30-11:00 **Morning Coffee**
- 11:00-12:30 **Session 4: Variance (Noise)**
Chair: Ben Lehner, CRG, Spain
- 11:00 Precision and plasticity in animal transcription
Angela Depace
Harvard Medical School, USA

- 11:30 Mechanisms controlling variation in complex traits
Mark Siegal
New York University, USA
- 12:00 Empirical mean-noise fitness landscapes and the evolution of gene expression
Jörn Schmiedel
Centre for Genomic Regulation (CRG), Spain
- 12:15 Ribosome provisioning arising from pyrimidine starvation activates a bistable phenotypic switch in *Pseudomonas fluorescens*
Gayle Ferguson
Massey University, New Zealand

12:30-14:00 **Lunch**

14:00-15:30 **Session 5: Many Genes**
Chair: Wolfgang Enard, LMU Munich, Germany

- 14:00 The maternal and zygotic genetics of developmental evolution
Matt Rockman
New York University, USA
- 14:30 Cis-regulatory evolution and ecological divergence in the *Arabidopsis* genus
Juliette De Meaux
University of Cologne, Germany
- 15:00 Systematic Analysis of Complex Genetic Interactions
Elena Kuzmin
McGill University, USA
- 15:15 The genomic and molecular basis of rapid polygenic response to selection for long leg length in mice
Frank Chan
Friedrich Miescher Laboratory of the Max Planck Society, Germany

15:30-16:00 **Afternoon Tea**

16:00-17:30 **Session 5: Many Genes continued**
Chair: Marie-Anne Félix, Institute of Biology of the Ecole Normale Supérieure, France

- 16:00 Whole organism genetic systems at single cell resolution
Patrick Phillips
University of Oregon, USA
- 16:30 The dynamics of adaptive genetic diversity during the early stages of clonal evolution
Jamie Blundell
University of Cambridge, UK

- 16:45 Clonal diversity accelerates the evolution of antimicrobial resistance
Ignacio Vázquez-García
Wellcome Sanger Institute / University of Cambridge, UK
- 17:00 Can compensatory evolution increase morphological diversity
between populations?
Karoly Kovacs
Biological Research Centre, Hungary
- 17:15-17:45 **Lightning talks**
- 17:45-19:15 **Poster Session 2 (even numbers) with drinks reception**
- 19:15 **Conference Dinner**

Friday, 13 April 2018

- 09:00-10:00 **Keynote Lecture**
Chair: Marie-Anne Félix, Institute of Biology of the Ecole Normale Supérieure, France
- Title tbc
Stan Leibler
The Rockefeller University, USA
- 10:00-10:30 **Morning Coffee**
- 10:30 -12:15 **Session 5 continued: Many Genes**
Chair: Sergey Kryazhimskiy, University of California San Diego, USA
- 10:30 An enormous niche construction and cross-feeding potential in
bacterial populations boosts diversification.
Magdalena San Roman
University of Zurich, Switzerland
- 10:45 On the deformability of an empirical adaptive landscape by microbial
evolution
Djordje Bajic
Yale University, USA
- 11:00 Rules-of-thumb in environmental growth control
Benjamin Towbin
Friedrich Miescher Institute for Biomedical Research, Switzerland

11:15 - 12:30 **Session 6: Non-genetic Inheritance**

Chair: Sophie Pantalacci, Ecole Normale Supérieure de Lyon, France

11:15 Non-genetic inheritance of alternative somatic versions of the genome
in *Paramecium*

Eric Meyer

École Normale Supérieure, France

11:45 Estimating epimutation rates in *Arabidopsis Thaliana*

Maria Colomé-Tatché

Helmholtz Zentrum München, Germany

12:15

Closing remarks

Patricia Wittkopp, University of Michigan, USA

12:30

Lunch

13:30

**Coaches depart to Cambridge City Centre and Train Station,
Stansted Airport via Heathrow Airport**