



PROGRAMME

Thursday 6 October

09:00 – 09:30 Registration

09:30 – 09:35 Welcome by Luis Serrano, CRG Director

09:35 – 09:40 Welcome by Roderic Guigó, CRG Bioinformatics and Genomics Coordinator

SESSION 1– CANCER EVOLUTION - CHAIR: Stephan Ossowski (CRG)

09:40 – 10:20 **“Combining in silico modeling and experimental validation to identify molecular mechanisms of cancer”**

Anna PANCHENKO, National Center for Biotechnology Information, National Institutes of Health, Bethesda USA

10:20 – 11:00 **“Modeling cancer evolution from genomic data”**

Niko BEERENWINKEL, Department of Biosystems Science and Engineering, ETH Zurich

11:00 – 11:30 Coffee break

11:30 – 12:10 **“Tumour genomes shed light into mutational processes and cancer vulnerabilities”**

Nuria LOPEZ-VIGAS, ICREA - University Pompeu Fabra, Barcelona ES

12:10 – 12:50 **“Measuring tumour evolutionary dynamics in individual patients from next-generation sequencing data”**

Andrea SOTTORIVA, Centre for Evolution and Cancer, The Institute of Cancer Research, London, UK

12:50 – 13:10 **“AKT Inhibition Promotes Nonautonomous Cancer Cell Survival”**

Xavier SOLÉ, Massachusetts General Hospital Cancer Center and Harvard Medical School, Boston, Massachusetts USA.

13:10 – 13:30 **“An eco-immunological approach for cancer: a new role for infectious diseases?”**

Camille JACQUELINE, CREEC, MIVEGEC, Montpellier FR

13:30 – 15:00 Lunch



SESSION 2 – GENETIC BASES OF DISEASE (I) - CHAIR: Fyodor Kondrashov (CRG)

15:00 – 15:40 **“Evolutionary Explanations for the Persistence of Genes that Harm Health”**
Randolph NESSE, The Center for Evolution & Medicine, Arizona State University
USA

15:40 – 16:00 **“Evolutionary Ecology of Organs: a Missing Link in Cancer Development?”**
Frédéric THOMAS, Centre de Recherches Écologiques & Évolutives sur le Cancer

16:00 – 16:20 **“Ancient origins, dispersal and diversity of HPV16, the most oncogenic human papillomavirus”**
Ville PIMENOFF, Catalan Institute of Oncology (ICO) and Bellvitge Institute of Biomedical Research (IDIBELL), Barcelona ES

16:20 – 16:50 Coffee break

SESSION 3 – HOST-PATHOGEN EVOLUTION IN INFECTIOUS DISEASE (I) – CHAIR: Cedric Notredame (CRG)

16:50 – 17:30 **“Tuberculosis as a case for evolutionary medicine in infectious diseases”**
Iñaki COMAS, Insitute de Biomedicina de Valencia (CSIC-IBV) ES

17:30 – 18:10 **“Adaptation and gene interactions in evolution of Influenza A”**
Yegor BAZYKIN, Institute for Information Transmission Problems of the Russian Academy of Sciences (Kharkevich Institute) // Skolkovo Institute of Science and Technology, Moscow RU

18:10 – 18:30 **“SCOTTI: Efficient Reconstruction of Transmission within Outbreaks with the Structured Coalescent”**
Nicola DE MAIO, Department of Ecology & Evolutionary Biology, University of Toronto CA

18:30 – 19:30 Networking event



Friday 7 October

SESSION 4 – HOST PATHOGEN EVOLUTION IN INFECTIOUS DISEASE (II) - CHAIR: Toni Gabaldón (CRG)

10:00 – 10:40 **“Thoughts on the origin of Microbial Virulence”**

Arturo CASADEVALL, W. Harry Feinstone Department of Molecular Microbiology and Immunology, Johns Hopkins Bloomberg School of Public Health, Baltimore USA

10:40 – 11:20 **“Within-host ecology and drug resistance in malaria infections”**

Nicole MIDEO, Department of Ecology & Evolutionary Biology, University of Toronto CA

11:20 – 11:50 Coffee break

11:50 – 12:30 **“Designing & Mining Integrative Omics Resources in the Big Data Era”**

David ROOS, Department of Biology, University of Pennsylvania USA

12:30 – 13:10 **“Decoding the Molecular Evolution of Antibiotic Resistance”**

Erdal TOPRAK, UT Southwestern Medical Center, Texas USA

13:10 – 13:30 **“Epidemiology and evolution of multiple infections: a formal approach”**

Mircea SOFONEA, Université de Montpellier FR

13:30 – 13:50 **“Evolutionary rescue’ of pathogens”**

Samuel ALIZON, Laboratoire MIVEGEC, Montpellier FR

13:30 – 15:00 Lunch

SESSION 5 – GENETIC BASES OF DISEASE (II) - CHAIR: Fyodor Kondrashov (CRG)

15:00 – 15:40 **“Hierarchical statistical models of natural selection and applications to rare Mendelian diseases and cancer”**

Shamil SUNYAEV, Division of Genetics, Department of Medicine, Brigham & Women's Hospital and Harvard Medical School, Boston USA

15:40 - 16:20 **“The Y chromosome contributes to sex-specific aging in Drosophila”**

Doris BATCHROG, Center for Theoretical Evolutionary Genomics, Department of Integrative Biology, University of California, Berkeley USA

16:40-16:50 Closing remarks