

EMBO Workshop

“Evolution in the Time of Genome Architecture”

September 13-15, 2017

Stazione Zoologica Anton Dohrn
Naples, Italy

Main Organizers: Giorgio Bernardi, Takashi Gojobori

Co-Organizers: Werner Arber, Roberto Danovaro, Dan Hartl, Laurence Hurst

DAY 1 Wednesday, 13 September, 2017

9.15-9.30 Welcome Roberto Danovaro

Session 1 Chair: Laurence Hurst

9.30-10.00 Marion Cremer (Ludwig Maximilians University, Munchen, Germany), Thomas Cremer (Center for Integrated Protein Science, Munich, Germany)

“ANC-INC Model of Nuclear Architecture and Evolutionary Aspects”

10.00-10.30 Gary Felsenfeld (NIH, Bethesda, USA)

“Multiple roles of CTCF in establishment of domains and boundaries”

10.30-11.00 Victor Corces (Emory University, Atlanta, USA)

“Evolutionarily Conserved Principles Predict 3D Chromatin Organization”

11.00-11.30 Coffee Break

11.30-12.00 Erez Lieberman-Aiden (Baylor College of Medicine, Houston, USA)

“A 3D code in the human genome”

12.00-12.30 Giorgio Bernardi (Roma Tre University, Rome, SZN, Naples, Italy)

“The genomic code: the genome architecture is encoded and molded by isochores”

12.30-13.00 General discussion

13.00-14.30 Lunch

Session 2 Chair: Gary Felsenfeld

14.30-15.00 Kamel Jabbari (Cologne Biocenter, Institute for Genetics, University of Cologne, Germany)

*“An isochore framework underlies chromatin architecture, **an extension**”*

15.00-15.30 Toyonori Sakata (The University of Tokyo, Tokyo, Japan)

“Organization of 3D genome structure mediated by cohesin and CTCF”

15.30-16.00 Coffee Break

16.00-16.30 Sergey Razin (Russian Academy of Science, Moscow, Russia)

“Evolution of the spatial organization of vertebrate globin gene domains”

16.30-17.00 Tamir Chandra (MRC Unit for Human Genetics, Edinburgh, Scotland)

“Chromosome organization in an evolutionary conserved stress response”

17.00-17.30 Short Presentations (Salvo Saccone; Floriana Della Ragione)

17.30-18.00 General discussion

DAY 2 Thursday, 14 September, 2017

Session 3 Chair: Adrian Bird

9.00-9.30 Stefan Mundlos (Max Planck Institute for Molecular Genetics, Berlin, Germany)

“Structural variations in the light of 3D genomics”.

9.30-10.00 Ana Pombo (Berlin Institute for Medical Systems Biology, Berlin, Germany)

“Capturing complex chromatin contacts with Genome Architecture Mapping (GAM)”

10.00-10.30 Denis Duboule (Université de Genève, Switzerland)

“Developmental Function and Evolution of Chromatin Landscapes at Hox Loci”

10.30-11.00 Coffee Break

11.00-11.30 Edith Heard (Institut Curie, Paris, France)

“The structural, functional and evolutionary dynamics of the inactive X chromosome”

11.30-12.00 Short presentations (Clara Kim; Dario Lupiáñez)

12.00-13.00 General discussion

13.00-14.30 Lunch

Session 4 Chair: Daniel Hartl

14.30-15.00 Takashi Gojobori (KAUST, Jeddah, Saudi Arabia)

“Genomic heterogeneity in the Middle East populations”

15.00-15.30 Naruya Saitou (National Institute of Genetics, Mishima, Japan)

“Emergence of conserved noncoding sequences in primate genomes”

15.30-16.00 Coffee Break

16.00-16.30 Adrian Bird (University of Edinburgh, Edinburgh, UK)

“The influence of long DNA sequence domains on gene expression”

16.30-17.00 Laurence Hurst (University of Bath, Bath, UK)

“Errors and the evolution of genomes”

17.00-17.30 Short Presentations (Frederique Magdinier; Julien Mozziconacci)

17.30-18.00 General discussion

DAY 3 Friday, 15 September, 2017

Session 5 Chair: Kateryna Makova

9.00-9.30 Werner Arber (University of Basel, Basel, Switzerland)

“Microbial genetics can reveal the laws of nature for biological evolution”

9.30-10.00 Laura Landweber (Columbia University, New York, USA)

“Evolution of Scrambled Genome Architectures”

10.00-10.30 Wen-Hsiung Li (The University of Chicago, Chicago, USA)

“Gene regulatory network of maize leaf development”

10.30-11.00 Coffee Break

11.00-12.00 Short Presentations (Héloïse Muller; Jerome Robin; Matthias Weissensteiner; Juanma Vaquerizas)

12.00-12.30 Christiane Groeben (History of Stazione Zoologica)

12.30-13.00 General discussion

13.00-14.30 Lunch

Session 6 Chair: Laura Landweber

14.30-15.00 Kateryna Makova (The Pennsylvania State University, University Park, Pennsylvania, USA)

“Non-B DNA affects polymerization speed and error rate in sequencers and living cells”

15.00-15.30 Eugene Koonin (NIH, Bethesda, USA)

“Mobile genetic elements as drivers of evolutionary transitions and key contributors to the evolution of defense systems”

15.30-16.00 Coffee Break

16.00-16.30 Daniel Hartl (Harvard University, Cambridge, USA)

“Chromosomal proteins that mediate X-Y intergenomic conflicts”

16.30-17.00 Short Presentation (Giuseppe Saccone; Judith Vlaar)

17.00-18.00 General discussion