



IRB
BARCELONA

INSTITUTE
FOR RESEARCH
IN BIOMEDICINE

Multidimensional Genomics: The 3D/4D organization of chromatin

November 13-15, 2017

Monday, 13 November 2017

8.30-9.00 Registration

9.00-9.15 Welcome by Modesto Orozco

Session I

Chair: Modesto Orozco

9.15-10.00 Steroid Receptor Binding Domains mediate receptor dependent intra-TAD folding and global genome organization in breast cancer cells

Miguel Beato, CRG (Barcelona, Spain)

10.00-10.45 Oncogenic enhancers dynamically associated with MYC in 3D influence its post-transcriptional regulation by mediating gene-nuclear pore interactions

Rolf Ohlsson, Karolinska Institutet (Stockholm, Sweden)

10.45-11.15 *Coffee break and poster session*

11.15-12.00 Role of Polycomb and MLL complexes in nuclear architecture and gene regulation

Luciano Di Croce, CRG/ ICREA (Barcelona, Spain)

12.00-12.20 SHORT TALK 1 Chromosome 3D organization is a driver of position effects in *Drosophila*

Guillaume J. Filion, CRG (Barcelona, Spain)

12.20-13.05 Functional impact of altering chromatin accessibility on mutational burden, topography, and tumor progression

Salvador Aznar-Benitah, IRB Barcelona/ICREA (Barcelona, Spain)

13.05-15.05 *Lunch (FrescCo, C/ Carme, 16)*

Session II

Chair: Giacomo Cavalli

- 15.05-15.50 Chromosome folding by loop extrusion**
Leonid Mirny, Massachusetts Institute of Technology (Cambridge, MA, USA)
- 15.50-16.10 SHORT TALK 2 PoSTAC (Polycistronic SunTAg modified CRISPR) enables live-cell and super-resolution visualization of multiple genes**
Maria Victoria Neguembor, CRG (Barcelona, Spain)
- 16.10-16.55 New technologies to understand the link between genome structure and activity**
Jim R. Hughes, MRC Weatherall Institute of Molecular Medicine (Oxford, UK)
- 16.55-17.25 *Coffee break and poster session***
- 17.25-17.45 SHORT TALK 3 Network methods uncover the 3D organization of replication factories**
Vera Pancaldi, Barcelona Supercomputing Centre (Barcelona, Spain)
- 17.45-18.30 Analysis of Chromatin Organization after Acute Loss of CTCF in Mouse Embryonic Stem Cells**
Bing Ren, University of California San Diego (La Jolla, CA, USA)
- 18.30 *End of session***

Tuesday, 14 November 2017

Session III

Chair: Marc Martí-Renom

- 9.00-9.45 A quantitative analysis of the hierarchical folding of mammalian chromosomes**
Luca Giorgetti, Friedrich Miescher Institute for Biomedical Research (Basel, Switzerland)
- 9.45-10.30 Multiscale modeling of the chromatin fiber: from nucleosomes to chromosomes**
Tamar Schlick, Courant Institute of Mathematical Sciences (New York, USA)
- 10.30-11.00 *Coffee break and poster session***
- 11.00-11.45 Epigenome folding: a main driver of 3D chromatin organization**
Daniel Jost, University Grenoble Alpes (Grenoble, França)

- 11.45-12.05 **SHORT TALK 4 Computational modeling reveals 4D genome reorganization during stem cell differentiation**
Jonas Paulsen, University of Oslo Faculty of Medicine (Oslo, Norway)
- 12.05-12.50 **Hi-C-constrained physical models of human chromosomes recover functionally-related properties of genome organization**
Cristian Micheletti, International School for Advanced Studies (Trieste, Italy)
- 12.50-15.00 **Lunch (FrescCo, C/ Carme, 16)**

Session IV

Chair: Giacomo Cavalli

- 15.00-15.45 **Cracking the Nucleus-Visualizing the Higher Order Coding Structures of DNA**
Clodagh O'Shea, Salk Institute for Biological Studies (La Jolla, CA, USA)
- 15.45-16.05 **SHORT TALK 5 Genome-wide mapping of lamin B1 reveals the existence of dynamic and functional euchromatin lamin B1 domains (eLADs)**
Sandra Peiró, Vall d'Hebron Institute of Oncology (Barcelona, Spain)
- 16.05-16.50 **The nanoscale structure and looping of chromatin fibers in somatic and stem cells**
Maria Pia Cosma, CRG/ICREA (Barcelona, Spain)
- 16.50-17.20 **Coffee break and poster session**
- 17.20-17.40 **SHORT TALK 6 Genome Architecture Mapping of Rare Cell Types in the Brain**
Warren Winick-Ng, Berlin Institute for Medical Systems Biology (Berlin, Germany)
- 17.40-18.25 **Updates on imaging and homolog pairing**
Ting Wu, Harvard Medical School (Boston, MA, USA)
- 18.25 **End of session**
- 20:30 **Speakers dinner**
"Restaurant Agüelo013" (Avinyó, 37)

Wednesday, 15 November 2017

Session V

Chair: Modesto Orozco

9.00-9.45 3D Chromosome and Genome Dynamics

Peter Fraser, The Babraham Institute (Cambridge, UK)

9.45-10.30 Chromatin structure in yeast: from beads on a string to 3D folding

Oliver J. Rando, University of Massachusetts Medical School (Worcester, MA, USA)

10.30-11.00 *Coffee break and poster session*

11.00-11.20 SHORT TALK 7 YY1 is a general structural component of enhancer-promoter loops

Alicia V. Zamudio, Whitehead Institute for Biomedical Research (Cambridge, MA, USA)

11.20-12.05 Genome architecture: mechanisms of 3D chromatin folding

Ana Pombo, MDC (Berlin, Germany)

12.05 *Closing remarks*