



Epigenetics in the Nervous System: Development and Disease

Berlin Institute for Medical Systems Biology
Max Delbrück-Center for Molecular Medicine
Berlin, Germany

June 8-10, 2022

Organizers:

- Ana Pombo
Max Delbrück-Center for Molecular Medicine, Germany
- Gonçalo Castelo-Branco
Karolinska Institutet, Sweden
- Abcam

Wednesday, June 8

- 15:00 **Registration and welcome**
- 16:00 **Sarah Marzi (Imperial College London, UK)**
Cell type-specific epigenetic regulation in Alzheimer's disease
- 16:35 **Maja Jagodic (Karolinska Institutet, Sweden)**
What can we learn about progressive neurodegeneration in Multiple Sclerosis from the epigenetic marks?
- 17:10 **Abstract speaker 1**
Warren Winick-Ng (Max-Delbrueck Centre for Molecular Medicine, Germany)
A history of a single cocaine exposure is encoded in the chromatin topology of midbrain dopamine neurons
- 17:30 **Aniko Karpati (Abcam, UK)**
Tools to interrogate pathways in neuroscience and epigenetics
- 17:45 **Poster session and drinks reception**
- 19:45 **End of Day 1**

Thursday, June 9

- 08:30 **Arrival refreshments**
- 09:00 **Speed networking session**
- 10:00 **Angel Barco (Instituto de Neurociencias UMH-CSIC, Spain)**
Epigenetic etiology of intellectual disability
- 10:35 **Abstract speaker 2**
Emily Brookes (University College London, UK)
A novel enhancer that regulates Bdnf expression in developing cortical neurons
- 10:55 **Break**
- 11:30 **Gonçalo Castelo-Branco (Karolinska Institutet, Sweden)**
Single-cell and spatial transcriptomics/epigenomics of oligodendroglia in development and in multiple sclerosis
- 12:05 **Abstract speaker 3**
Enric Llorens (Karolinska Institutet, Sweden)
Spatially-resolved chromatin accessibility in the developing mouse brain using spatial-ATAC-seq
- 12:25 **Lunch**
- 13:25 **Meet the speakers – session I**
- 14:00 **Daniele Canzio (University of California San Francisco, US)**
The role of chromosome architecture in brain wiring
- 14:35 **Abstract speaker 4**
Marek Bartosovic (Karolinska Institutet, Sweden)
Single-cell CUT&Tag-based multimodal profiling the epigenome in the mouse brain

- 14:55 **Abstract speaker 5**
Boyan Bonev (Pioneer Campus, Helmholtz Zentrum München, Germany)
Joint profiling of 3D genome, DNA methylation, chromatin accessibility and gene expression in human cerebral organoids
- 15:15 **Break**
- 15:45 **Zhaolan Zhou (Perelman School of Medicine, University of Pennsylvania, US)**
"Seq-ing" epigenetic insights into stress-related psychiatric disorders
- 16:20 **Daniel Geschwind (Institute of Precision Health, UCLA, US)**
Integrating functional genomics data to characterize genetic risk factors in neuropsychiatric disease
- 17:00 **Poster session and drinks reception**
- 18:30 **Conference social**

Friday, June 10

- 08:30 **Arrival refreshments**
- 09:00 **Igor Ulitsky (Weizmann Institute of Science, Israel)**
Functions of long noncoding RNAs in the nervous system
- 09:35 **Abstract speaker 6**
Cesar Sierra (CRG, Spain)
Single nucleus RNA-seq in the hippocampus reveals Snhg11, a lncRNA, as key player in Down syndrome
- 09:55 **Flash talks**
- 10:30 **Break**

- 11:00 **Hongjun Song (Perelman School of Medicine, University of Pennsylvania, US)**
Epitranscriptomic regulation in the mammalian nervous system
- 11:35 **Abstract speaker 7**
Mattia Zaghi (Ospedale San Raffaele, Italy)
SETBP1/SET axis regulates chromatin landscape in Schinzel-Giedion syndrome
- 11:55 **Charlotte Arlt (Nature Neuroscience, Germany)**
Editorial Processes at Nature Neuroscience
- 12:25 **Lunch**
- 13:25 **Meet the speakers session II**
- 14:00 **Olivia Engmann (Friedrich Schiller University Jena, Germany)**
Reversing chronic stress effects through life-style interventions
- 14:35 **Abstract speaker 8**
Johan Holmberg (Umeå University, Sweden)
PRC2-mediated repression is essential to maintain identity and function of differentiated dopaminergic and serotonergic neurons
- 14:55 **Tanja Vogel (Institute of Anatomy and Cell Biology, University of Freiburg, Germany)**
Histone methylation determines cell lineage progression in the developing brain by controlling metabolic programs
- 15:30 **Stefan Stricker (Helmholtz Zentrum München, Germany)**
Reprogramming neural cell fates through targeted manipulation of cell identity barriers applying epigenome editing
- 16:10 **Closing remarks**

Poster Index

- Poster 1 **Andreas Abentung (Norwegian University of Science and Technology, Norway)**
DNA Glycosylase-Dependent Regulation of the Neuronal Epigenome
- Poster 2 **Eneritz Agirre (Karolinska Institutet, Sweden)**
Epigenomic priming of immune genes in oligodendroglia in mouse and human is compatible with transition to immune states in multiple sclerosis
- Poster 3 **Sílvia Carvalho (Max-Delbrück Center for Molecular Medicine, Germany)**
Srrm2 splicing factor plays a key role in stem cell identity
- Poster 4 **Diana Christian (Washington University, US)**
Identifying shared and distinct phenotypic and epigenomic disruptions in DNMT3A mutants
- Poster 5 **Katherine Fodder (Queen Square Brain Bank for Neurological Disorders, UCL, UK)**
DNA methylation signatures related to brain cell types in Progressive Supranuclear Palsy
- Poster 6 **Yanan Han (Karolinska Institutet, Sweden)**
Genome-wide DNA methylation of cerebrospinal fluid cells in Multiple Sclerosis
- Poster 7 **Victoria Honnell (St. Jude Children's Research Hospital, US)**
The role of Vsx2 in human retinal organoid development
- Poster 8 **Mukund Kabbe (Karolinska Institutet, Sweden)**
Chromatin accessibility landscape in adult human oligodendroglia
- Poster 9 **Maria Kalomoiri (Karolinska Institutet, Sweden)**
Investigation of the effect of epigenome editing tools in the context of Central Nervous System inflammation
- Poster 10 **Taro Kitazawa (Friedrich Miescher Institute for Biomedical Research, Switzerland)**
Epigenetic and transcriptional regulation of neuronal activity-response genes during development
- Poster 11 **Sean Louzon (University of Pennsylvania, US)**
Histone Variant H2BE Promotes Astrocyte Senescence and Aged-Related Memory Deficits in Mice
- Poster 12 **Federico Miozzo (Neuroscience Institute – CNR, Italy)**
Maintenance of mitochondrial integrity in midbrain dopaminergic neurons governed by a conserved developmental transcription factor
- Poster 13 **Kitty Murphy (UK Dementia Research Institute, Imperial College London, UK)**
CHAS, a deconvolution tool, infers cell type-specific signatures in bulk brain histone acetylation studies of brain disorders

- Poster 14 **Clara Penas Perez (Universitat Autònoma de Barcelona, Spain)**
Targeting BET proteins in macrophages for enhancing nerve regeneration after peripheral nerve injury in mice
- Poster 15 **Dominik Szabó (Max-Delbrück Centre for Molecular Medicine, Germany)**
Chromatin 'Melting' as a 3D Genome Feature of Highly Expressed Neuronal Genes
- Poster 16 **Maria Tsalenchuk (UK Dementia Research Institute, Imperial College London, UK)**
Single-cell epigenetic study of environmental risk factors in Parkinson's disease
- Poster 17 **Margherita Zamboni (Karolinska Institutet, Sweden)**
Spatially-resolved chromatin accessibility in the developing mouse brain using spatial-ATAC-seq
- Poster 18 **Luna Zea-Redondo (Max-Delbrück Center for Molecular Medicine, Germany)**
Role of chromatin remodeling in regulating activity-dependent gene expression in dopaminergic neurons and its potential implication on drug addiction
- Poster 19 **Chao Zheng (Karolinska Institutet, Sweden)**
Dynamics of transcriptomic and epigenomic states of oligodendrocytes in experimental autoimmune encephalomyelitis
- Poster 20 **Daniel Connolly (University of Pennsylvania, US)**
Transcriptomic insights into the etiology of Rett syndrome
- Poster 21 **Lasse Sinkkonen (University of Luxembourg, Luxembourg)**
Integrated epigenomic analysis identifies novel regulators of midbrain dopaminergic neuron differentiation
- Poster 22 **Jacqueline Aw (The Hong Kong University of Science and Technology, Hong Kong)**
DNA repair inhibition leads to release of repetitive sequences in the cytoplasm