



# Multiomics to Mechanisms - Challenges in Data Integration

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## Location & dates

EMBL Heidelberg, Germany 11 - 13 Sep 2019

## Deadlines

Registration closed Abstract submission closed

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Symposia



## Programme

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### Day 1 - Wednesday 11 September 2019

Time	Speaker
<b>11:00-13:00</b>	Registration and light refreshments
13:00-13:10	<b>Opening remarks</b>
13:10-17:10	<b>Session 1</b> Chair: Nevan Krogan - University of California, San Francisco, USA

Time	Speaker
13:10- 13:40	<b>Genome Architecture Mapping: exploring state specific 3D genome topologies in brain cells</b> Ana Pombo - Max Delbrück Center for Molecular Medicine, Germany
13:40 -14:10	<b>From genomic data to molecular insights: statistical models to learn about gene regulation</b> Nicholas Luscombe - University College London, UK
14:10- 14:25	<b>1 Selected talk: Dissecting the mechanisms of molecular and cellular variation in human adipogenesis</b> AlpernDaniel - EPFL, Switzerland
14:25- 14:40	<b>2 Selected talk: Rewiring of energy metabolism drives resistance to the proteasome inhibitor bortezomib</b> Celia Berkers - Utrecht University, The Netherlands
14:40- 15:10	<b>Biphasic input-output relationships—there might be no such thing as too much of a good thing</b> Hana El-Samad - University of California, San Francisco, USA
15:10- 15:40	<b>Coffee break &amp; meet the speakers</b>
15:40- 16:10	<b>The power of ONE: Immunology in the age of single cell genomics</b> Ido Amit - Weizmann Institute of Science, Israel
16:10- 16:25	<b>3 Selected talk: Integration of single cell DNA and RNA sequencing data to unravel tumor subclones</b> Nicola Andrea Casiraghi - DKFZ, EMBL Heidelberg, Germany

Time	Speaker
16:25- 16:40	<b>4 Selected talk: Linking the tRNA epitranscriptome to cellular protein homeostasis using a novel comprehensive multi-omics approach</b> Johannes Leufken - University of Bern, Switzerland
16:40- 16:55	<b>5 Selected talk: The pause-initiation limit restricts transcription activation in human cells</b> Saskia Gressel - Max Planck-Institute for Biophysical Chemistry, Germany
16:55- 17:10	<b>6 Selected talk: Multi-state synaptic phosphorylation barcodes in health and disease</b> Marcelo Coba - University of Southern California, USA
17:10- 17:50	<b>Flash Talks I - selected from abstracts # 69, 73, 75, 87, 99, 129, 131, 145, 163, 183</b> (1 slide / 2 min each) in ATC Auditorium
17:50- 19:00	<b>Poster Session I</b> Helix A (odd numbers)
19:00- 21:00	<b>Dinner in the EMBL Canteen</b>
21:00- 22:30	<b>After dinner drinks in the ATC Rooftop Lounge</b>

## Day 2 - Thursday 12 September 2019

Time	Speaker
<b>09:00 - 12:45</b>	<b>Session 2</b> Chair: Judit Villén - University of Washington, United States of America

Time	Speaker
09:00- 09:30	<b>Single cell proteome variability in human cells</b> Emma Lundberg - Science for Life Laboratory (KTH), Sweden
09:30- 09:45	<b>7 Selected talk: Integrated multiomics unravels metabolic diet-microbiota-host interactions</b> Maria Zimmermann-Kogadeeva - EMBL Heidelberg, Germany
09:45- 10:00	<b>8 Selected talk: Contextualizing signalling pathways with genomic and transcriptomic data to dissect drug efficacy and gene essentiality in cancer</b> Julio Saez-Rodriguez - Heidelberg University, Germany
10:00- 10:30	<b>Single Molecule Protein Sequencing</b> Edward Marcotte - The University of Texas at Austin, USA
10:30- 11:00	<b>Coffee break &amp; meet the speakers</b>
11:00- 11:30	Christopher Burge - Massachusetts Institute of Technology, USA
11:30- 11:45	<b>9 Selected talk: Prediction of drug-target interactions through drug and overexpression metabolome profiling</b> Duncan Holbrook-Smith - ETH Zurich, Switzerland
11:45- 12:00	<b>10 Selected talk: Towards improved biophysical models of protein folding to identify disease-causing mutations</b> Amelie Stein - University of Copenhagen, Denmark
12:00- 12:15	<b>11 Selected talk: A Functional Map of HIV-Host Interactions in Primary Human T cells</b> Joseph Hiatt - University of California, San Francisco , USA

Time	Speaker
12:15- 12:45	<b>Splicing kinetics and coordination revealed by direct nascent RNA sequencing through nanopores</b> L. Stirling Churchman - Harvard Medical School, USA
12:45- 14:15	<b>Lunch</b>
<b>14:15- 17:15</b>	<b>Session 3</b> Chair: Patrick Cramer - Max Planck Institute for Biophysical Chemistry, Germany
14:15- 14:45	<b>Towards predicting gene expression from DNA sequence</b> Jussi Taipale - University of Cambridge, UK
14:45- 15:00	<b>12 Selected talk: Deciphering the Signaling Network Landscape of Breast Cancer Supports Personalized Medicine</b> Marco Tognetti - University of Zurich, ETH Zurich, Switzerland
15:00- 15:15	<b>13 Selected talk: A reference map of the human protein interactome reveals tissue-specific biological mechanisms</b> Katja Luck - Dana-Farber Cancer Institute, USA
15:15- 15:45	<b>Encoding of cellular multi specificity by a model molecular switch</b> Tanja Kortemme - University of California, San Francisco, USA
15:45- 16:15	Coffee Break & meet the Speakers

Time	Speaker
16:15- 16:45	<b>From Proteomes to metabolomes - how a new generation of high-throughput analytics enables the prediction of the cellular metabolome</b> Markus Ralser - The Francis Crick Institute, UK and Charité University Medicine, Germany
16:45- 17:15	<b>Epigenetic variation across individuals reveal insights into disease mechanisms</b> Judith Zaugg - EMBL Heidelberg, Germany
17:15- 17:50	<b>Flash talks II - selected from abstracts # 38, 40, 42, 56, 64, 68, 102, 128, 133, 134, 146, 148, 154, 160, 170, 176, 184</b> (1 slide / 2 min each) in ATC Auditorium
17:50- 19:00	<b>Poster Session II</b> Helix A (even numbers)
19:00- 21:30	<b>Banquet Dinner in the EMBL Canteen</b>
21:30- 00:00	<b>Conference Party with DJ</b>

### Day 3 - Friday 13 September 2019

Time	Speaker
<b>09:00- 12:30</b>	<b>Session 4</b> Chair: Judith Zaugg - EMBL Heidelberg, Germany
09:00- 09:30	<b>Reconstructing development and regeneration using single-cell genomics</b> Barbara Treutlein - ETH Zürich, Switzerland

Time	Speaker
09:30- 09:45	<b>14 Selected talk: A multiomics driven approach for industrial-scale modeling of neurological disease using human induced pluripotent stem cells</b> Robert Altshuler - Novartis Institutes for Biomedical Research, USA
09:45- 10:00	<b>15 Selected talk: Native molecule sequencing by nano-ID reveals synthesis and stability of RNA isoforms</b> Björn Schwalb - Max Planck Institute for Biophysical Chemistry, Germany
10:00- 10:30	<b>Cell signaling as a cognitive process?</b> Philippe Bastiaens -Max Planck Institute of Molecular Physiology, Germany
10:30- 11:00	<b>Coffee Break &amp; Meet the speakers</b>
11:00- 11:30	<b>Systematic investigation of the regulation and function of alternative splicing networks</b> Ben Blencowe - University of Toronto, Canada
11:30- 12:00	<b>Systems integration of metabolomics and in vivo metabolic flux analysis reveals complex regulatory networks in diabetic complications</b> Subramaniam Pennathur - University of Michigan, USA
12:00- 12:30	<b>Proteomes in 3D</b> Paola Picotti - ETH Zurich, Switzerland
12:30- 14:00	<b>Lunch</b>



Time	Speaker
14:00-16:30	<b>Session 5</b> Chair: Uwe Sauer - ETH Zurich, Switzerland
14:00-14:30	<b>Integrative modeling of biomolecular assembly structures</b> Andrej Sali - University of California, San Francisco, USA
14:30-15:00	<b>Measuring the impact of amino acid substitutions on protein function proteome-wide</b> Judith Villén - University of Washington, USA
15:00-15:30	<b>Multiplexed probing of chromatin effects on DNA double-strand break repair</b> Bas van Steensel - The Netherlands Cancer Institute, The Netherlands
15:30-16:00	<b>Coffee Break &amp; meet the speakers</b>
16:00-16:15	<b>16 Selected talk: Multi-omics define divergent gene expression regulation and drivers of esophageal squamous cell carcinoma</b> Wei Wu - UCSF, USA
16:15-16:30	<b>17 Selected talk: The wild metabolism of domesticated tomato – multi-omic analysis of a Solanum lycopersicum-pennellii introgression population</b> Jedrzej Szymanski - Leibniz Institute of Plant Genetics and Crop Plant Research, Germany
16:30-17:00	<b>Closing remarks</b>
17:00	<b>Departure</b>