

Abstracts of papers presented at the

EMBO | EMBL Symposium: Metabolism Meets Epigenetics

EMBL Heidelberg, Germany, 20 - 23 November 2019

Scientific Organisers:

Theodore Alexandrov
EMBL Heidelberg, Germany

Andreas Ladurner
Ludwig Maximilian University of Munich, Germany

Jane Mellor
University of Oxford, United Kingdom

Erika Pearce
Max Planck Institute of Immunobiology and Epigenetics, Germany

Conference Organiser:

Inna Bösselmann
EMBL Heidelberg, Germany

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Wednesday 20 November 2019

11:00 - 13:15	Arrival and Registration ATC Registration Desk	
13:15 - 13:30	Opening remarks ATC Auditorium	
13:30 - 14:30	Keynote Lecture 1: Metabolic-epigenetic axis in memory programming and disease Shelley Berger <i>University of Pennsylvania, United States of America</i>	1
14:30 - 18:15	Session1: Metabolism Chair: Erika Pearce ATC Auditorium	
14:30 - 15:00	Transcriptional networks and epigenomic mechanisms driving lineage-determination of human mesenchymal stem cells Susanne Mandrup <i>University of Southern Denmark, Denmark</i>	2
15:00 - 15:30	Metabolism, chromatin and transcription during a metabolic cycle Jane Mellor <i>University of Oxford, United Kingdom</i>	3
15:30 - 16:00	Coffee Break and Meet the Editors ATC Auditorium Foyer	
16:00 - 16:30	Epigenetic modifications on chromatin: more or less than meets the eye? Benjamin Tu <i>University of Texas Southwestern Medical Center, United States of America</i>	4
16:30 - 17:00	Glycolytic flux control of mouse embryo segmentation Alexander Aulehla <i>EMBL Heidelberg, Germany</i>	5

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17:00 - 17:15	Riboregulation of Glycolysis via Human Enolase 1 Ina Huppertz <i>EMBL Heidelberg, Germany</i>	6
17:15 - 17:30	Discovering key metabolic and bioenergetic signaling molecules during mitochondrial dysfunction Yeyun Ouyang <i>University of Utah, United States of America</i>	7
17:30 - 17:45	Metabolic competition between phospholipid synthesis and histone methylation controls sexual differentiation in malaria parasites Björn Kafsack <i>Weill Cornell Medical College, United States of America</i>	8
17:45 - 18:00	NAD synthesis in glioblastoma cells Christiane Opitz <i>German Cancer Research Center, Germany</i>	9
18:00 - 18:15	Glutamine metabolism controls chondrocyte fate and function during bone development Steve Stegen <i>KU Leuven, Belgium</i>	10
18:15 - 20:15	Dinner EMBL Canteen	
20:15 - 22:00	Poster "Sneak Preview" ATC Helix A	
21:00 - 22:00	Welcome Drinks ATC Rooftop Lounge	

Thursday 21 November 2019

09:00 - 12:00	Session 2: Epigenetics Chair: Jane Mellor ATC Auditorium	
09:00 - 09:30	MOF histone acetyl transferase containing NSL complex linking epigenetics and metabolism Asifa Akhtar <i>Max Planck Institute of Immunobiology and Epigenetics, Germany</i>	11
09:30 - 10:00	Histone Crotonylation links Metabolism to Gene Expression Ashby Morrison <i>Stanford University, United States of America</i>	12
10:00 - 10:30	A NAD Metabolite Triggers the Allosteric Activation of the Chromatin Remodeling Oncogene ALC1/CHD1L Andreas Ladurner <i>Ludwig Maximilian University of Munich, Germany</i>	13
10:30 - 11:00	Coffee Break ATC Auditorium Foyer	
11:00 - 11:15	Repression of Mammalian Promoters by Methylation-Directed O-Glycosylation of Chromatin Factors Matthieu Boulard <i>EMBL Rome, Italy</i>	14
11:15 - 11:30	Histone variants link metabolism to 3D chromatin architecture Marcus Buschbeck <i>Josep Carreras Leukaemia Research Institute, Spain</i>	15
11:30 - 11:45	Modulation of human mitochondrial metabolism by novel lysine-specific methyltransferases Pål Falnes <i>University of Oslo, Norway</i>	16

11:45 - 12:00	Metabolic adaptations underlie epigenetic changes in chemotherapy-resistant breast cancer	17
	Geneviève Deblois <i>McGill University, Canada</i>	
12:00 - 13:30	Lunch ATC Auditorium Foyer	
13:30 - 17:15	Session 3: Immunometabolism Chair: Marcia Haigis ATC Auditorium	
13:30 - 14:00	Metabolic and Epigenetic Reprogramming in Myeloid Cells	18
	Mihai G. Netea <i>Radboud University Medical Center, The Netherlands</i>	
14:00 - 14:30	Regulation of antiviral and anti-tumor T cell responses by Sphingolipid Metabolism	19
	Guoliang Cui <i>German Cancer Research Center (DKFZ), Germany</i>	
14:30 - 15:00	Metabolic regulation of anti-tumor immunity	20
	Susan Kaech <i>Salk Institute for Biological Studies, United States of America</i>	
15:00 - 15:30	Coffee Break ATC Auditorium Foyer	
15:30 - 16:00	To be presented onsite	21
	Erika Pearce <i>Max Planck Institute of Immunobiology and Epigenetics, Germany</i>	
16:00 - 16:15	Metabolic reprogramming of myeloid cells prevents age-associated cognitive decline	22
	Katrin Andreasson <i>Stanford University, United States of America</i>	

Programme

- 16:15 - 16:30 **Aberrant lipid metabolism and pro-inflammatory macrophage activation define NSAID-exacerbated respiratory disease** 23
Julia Esser-von Bieren
Technical University of Munich and Helmholtz Center Munich, Germany
- 16:30 - 16:45 **Calcineurin-NFAT alters the energy metabolism of activated human monocytes** 24
Marcela Hortova Kohoutkova
International Clinical Research Center of St. Anne's University Hospital in Brno, Czech Republic
- 16:45 - 17:00 **The mitochondrial encoded peptide MOTS-c regulates T cell metabolism to prevent autoimmune diabetes** 25
ByungSoo Kong
Seoul National University Hospital, Republic of Korea
- 17:00 - 17:15 **Flash Talks Session 1 (1 slide - 2 min each)**
ATC Auditorium
- 17:15 - 19:00 **Poster Session 1 (odd numbers)**
ATC Helix A
- 19:00 - 21:00 **Dinner**
EMBL Canteen
- 21:00 - 22:00 **After Dinner Drinks**
ATC Rooftop Lounge

Friday 22 November 2019

09:00 - 12:00	Session 4: Novel Tools Chair: Alexander Aulehla ATC Auditorium	
09:00 - 09:30	To be presented onsite Kai Johnsson <i>Max-Planck Institute for Medical Research, Germany</i>	26
09:30 - 10:00	Exploring the microbiota-host epigenetics axis in diet-induced obese mice upon lifestyle intervention Oscar Yanes <i>Rovira i Virgili University, Spain</i>	27
10:00 - 10:30	Spatial metabolomics in tissues and single cells Theodore Alexandrov <i>EMBL Heidelberg, Germany</i>	28
10:30 - 11:00	Coffee Break ATC Auditorium Foyer	
11:00 - 11:15	Identification of proteins on total DNA links the metabolic enzyme AHCY to chromatin Sergi Aranda <i>Centre for Genomic Regulation, Barcelona Institute of Science and Technology, Spain</i>	29
11:15 - 11:30	Development of ZeNITH a single cells based method for metabolic profiling of human tumors Rafael Argüello <i>Centre d'Immunologie de Marseille-Luminy, France</i>	30
11:30 - 11:45	Contextualizing chaotic metabolic networks and their regulation Jordan Berg <i>University of Utah, United States of America</i>	31
11:45 - 13:30	Lunch ATC Auditorium Foyer	

13:30 - 17:15	Session 5: Chromatin and Metabolism Chair: Andreas Ladurner ATC Auditorium	
13:30 - 14:00	Epigenetic underpinnings of metabolic disease heterogeneity John Andrew Pospisilik <i>Van Andel Institute, United States of America</i>	32
14:00 - 14:30	Model-driven rewiring of cellular metabolism and histone acetylation Sriram Chandrasekaran <i>University of Michigan, United States of America</i>	33
14:30 - 15:00	Hormone polyagonists as metabolic precision medicines: Discovery, mechanism and clinical validation Matthias Tschöp <i>Helmholtz Zentrum München, Germany</i>	34
15:00 - 15:30	Coffee Break ATC Auditorium Foyer	
15:30 - 16:00	Yeast respiratory oscillations are driven by the energetic demands of proteostasis John O'Neill <i>MRC Laboratory of Molecular Biology, United Kingdom</i>	35
16:00 - 16:15	Epigenetic inheritance of lipotoxic cardiomyopathy in <i>Drosophila</i> Maria Clara Guida <i>Stanford Burnham Prebys Medical Discovery Institute, United States of America</i>	36
16:15 - 16:30	A Creb3-Like transcription factor regulates feeding behavior through the early secretory machinery genes Haris Khan <i>Ludwig Maximilian University of Munich, Germany</i>	37
16:30 - 16:45	The INO80 ATP-dependent chromatin remodeller promotes selective autophagy under metabolic stress conditions Manolis Papamichos-Chronakis <i>Newcastle University, United Kingdom</i>	38

- 16:45 - 17:00 **Uncovering metabolic pathways operating in the mammalian nucleus** 39
Eleni Kafkia
EMBL Heidelberg, Germany
- 17:00 - 17:15 **Flash Talks Session 2 (1 slide - 2 min each)**
ATC Auditorium
- 17:15 - 19:00 **Poster Session 2 (even numbers)**
ATC Helix A
- 19:00 - 21:00 **Conference Dinner**
EMBL Canteen
- 21:00 - 00:00 **Conference Party with Live Band**
ATC Auditorium Foyer

Saturday 23 November 2019

09:00 - 10:00	Keynote Lecture 2: The Role of Metabolism in Health and Disease Marcia Haigis <i>Harvard Medical School, United States of America</i>	40
10:00 - 10:30	Coffee Break ATC Auditorium Foyer	
10:30 - 12:00	Session 6: Systems Analysis of Metabolism Chair: Theodore Alexandrov ATC Auditorium	
10:30 - 11:00	Enzyme structural states as a new global readout for enzyme functional states Paola Picotti <i>ETH Zurich, Switzerland</i>	41
11:00 - 11:30	Finding missing links in genotype-phenotype relationship using machine learning Aleksej Zelezniak <i>Chalmers University of Technology, Sweden</i>	42
11:30 - 11:45	Large-scale protein tagging to study protein localization and dynamics of metabolic enzymes and epigenetic modifiers Andreas Reicher <i>CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences, Austria</i>	43
11:45 - 12:00	Coordination of RNA abundance with cell size Scott Berry <i>University of Zurich, Switzerland</i>	44
12:00 - 12:30	Closing Remarks and Poster Prize ATC Auditorium	
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