

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

DNA and RNA Methylation (A7)

January 21-25, 2018 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada

Scientific Organizers: Chuan He and Ting Wang

Sponsored by Cell Research

Abstract & Scholarship Deadline: September 27, 2017 / Abstract Deadline: October 27, 2017 / Discounted Registration Deadline: November 28, 2017

SUNDAY, JANUARY 21

Arrival and Registration

MONDAY, JANUARY 22

Welcome and Keynote Address

***Chuan He**, University of Chicago, USA

Joseph R. Ecker, The Salk Institute for Biological Studies, USA
Single Cell Methylomes Reveal Neuronal Populations and Regulatory Elements in the Mammalian Brain

Global DNA Methylation

***Ting Wang**, Washington University, USA

Dirk Schübeler, Friedrich Miescher Institute for Biomedical Research, Switzerland
Sensitivity of Transcription Factors to Chromatin and DNA Methylation

Alexander Meissner, Max Planck Institute for Molecular Genetics, Germany
DNA Methylation

Steven E. Jacobsen, University of California, Los Angeles, USA
RNA-Directed DNA Methylation

Wei Xie, Tsinghua University, China
Short Talk: Dynamic Epigenetic Landscapes during Early Lineage Specification

Art Petronis, University of Toronto, Canada
Short Talk: Circadian DNA Modification Hallmarks of Aging and Disease

Poster Session 1

Workshop 1: Epigenome and Computational Biology

***Ting Wang**, Washington University, USA

Michael M. Hoffman, University of Toronto, Canada
Modeling Methyl-Sensitive Transcription Factor Motifs with an Expanded Epigenetic Alphabet

Wei Li, Baylor College of Medicine, USA
Cell Heterogeneity Adjusted Clonal Methylation (CHALM) Better Quantifies the Functional Consequences of DNA Methylation

Michael T. McManus, University of California, San Francisco, USA
Programmable de novo DNA Methylation in vivo

Jennifer M. SanMiguel, University of Pennsylvania, USA
Exploring the Role of Tet1 in Genomic Imprinting

Guifeng Wei, University of Oxford, UK
Nascent Epitranscriptome Profiling Reveals Widespread Intronic m6A in Mouse ES Cells

Bing Yao, Emory University, USA
DNA N6-Methyladenine Is Dynamically Modified in the Mouse Brain following Environmental Stress

Evangelos Kiskinis, Northwestern University Feinberg School of Medicine, USA
Dissecting DNA Methylation Dynamics during the Development and Function of The Human Spinal Cord

Dynamic DNA Methylation

***Wei Xie**, Tsinghua University, China

Wolf Reik, Babraham Institute, UK
Epigenetic Programming in Development and Aging

Joseph F. Costello, University of California, San Francisco, USA
Evolution of the Epigenome during Tumor Progression

Anjana Rao, La Jolla Institute for Allergy and Immunology, USA
Active DNA Demethylation

Bing Zhu, Chinese Academy of Sciences, China
Short Talk: Regulation of de novo DNA Methylation during Oogenesis

TUESDAY, JANUARY 23

DNA Methylation in Diseases

***Joseph F. Costello**, University of California, San Francisco, USA

Peter A. Jones, Van Andel Research Institute, USA
Awakening Endogenous Retroviruses for Cancer Therapy

Ting Wang, Washington University, USA
Transposable Elements in Normal and Cancer Epigenome

Margaret A. Goodell, Baylor College of Medicine, USA
DNA Methylation in Leukemia

Dana C. Dolinoy, University of Michigan School of Public Health, USA
Longitudinal Effects of Developmental Exposures on Age-Related DNA Methylation and Hydroxymethylation

Kirsten C. Sadler, New York University Abu Dhabi, United Arab Emirates
Short Talk: Cell Cycle Arrest, Apoptosis and Immune Surveillance as Mechanisms to Eliminate Cells with DNA Hypomethylation

Yong Cheng, St. Jude Children's Research Hospital, USA
Short Talk: Characterizing the Functions of Dynamic DNA Methylation between Adult and Fetal Erythroid Cells

Meet the Editors

***Chuan He**, University of Chicago, USA

Hands-On Workshop: Engaging Roadmap, ENCODE, and 4DN Data Using the WashU Epigenome Browser

***Ting Wang**, Washington University, USA

Other DNA Methylation

***Bing Zhu**, Chinese Academy of Sciences, China

Yang Shi, Children's Hospital Boston, Harvard Medical School, USA
DNA 6mA Methylation

Andrew Xiao, Yale University, USA
The Recent Expansion of Epigenetic Regulatory Repertoire in Mammals

Chunxiao Song, University of Oxford, UK
Using Epigenetic Signatures in Cell-Free DNA for Cancer Detection

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Silvia Monticelli, Institute for Research in Biomedicine, Switzerland
Short Talk: Dynamics of DNA Methylation and Hydroxymethylation in Human T Cell Responses

Poster Session 2

WEDNESDAY, JANUARY 24

Dynamic RNA Methylation

***Pedro J. Batista**, NCI, National Institutes of Health, USA

Chuan He, University of Chicago, USA
RNA Methylation in Gene Expression Regulation

Gideon Rechavi, Tel Aviv University, Israel
Biological Implications of Epitranscriptomics

Samie Jaffrey, Weill Medical College of Cornell University, USA
Encoding the Fate and Function of mRNA with Reversible Epitranscriptomic Modifications at Internal Sites and in mRNA Caps

Tao Pan, University of Chicago, USA
M6A-dependent RNA Interaction with a Low-complexity Protein Regulates Co-transcriptional Gene Expression

Chengqi Yi, Peking University, China
Short Talk: Mapping the Functional Mammalian Epitranscriptome

Patrick Paddison, Fred Hutchinson Cancer Research Center, USA
Short Talk: N6-Methyladenosine Regulates Translation of Key Genes Required for Human Erythroid Lineage Specification

RNA Methylation in Development and Cellular Processes

***Chengqi Yi**, Peking University, China

Jianjun Chen, Beckman Research Institute of City of Hope, USA
N6-Methyladenosine in Acute Myeloid Leukemia

Hani Goodarzi, University of California, San Francisco, USA
Targeted Regulation of Transcript Stability through RNA Methylation and Intron Retention

Yunsun Nam, University of Texas Southwestern Medical Center, USA
Structural Studies of RNA Methylation

Pedro J. Batista, NCI, National Institutes of Health, USA
Short Talk: The Rna Helicase Ythdc2/Bgcn Regulates the Transition from Proliferation to Differentiation in the Germline Stem Cell Lineage

Poster Session 3

THURSDAY, JANUARY 25

RNA Methylation in Diseases

***Patrick Paddison**, Fred Hutchinson Cancer Research Center, USA

Tariq M. Rana, University of California, San Diego, USA
RNA Methylation during Viral Infections

Stacy M. Horner, Duke University Medical Center, USA
RNA Methylation in Flaviviridae Virus Infection

Suyun Huang, MD Anderson Cancer Center, USA
RNA Methylation in Glioma

Yanhong Shi, Beckman Research Institute of City of Hope, USA
RNA Modification in Glioblastoma

Housheng Hansen He, Princess Margaret Cancer Centre, Canada
Short Talk: The Dynamic N6-Methyladenosine Epitranscriptomic Landscape in Lung Adenocarcinoma

Pooja Yadav, University of Texas Health Science Center, USA
Short Talk: N6 Methyladenosine RNA Demethylase Regulates Osteosarcoma Growth and DNA Damage Response

Workshop 2: DNA and RNA Methylation in Diseases

***Chuan He**, University of Chicago, USA

Humaira Gowher, Purdue University, USA
Biological Outcomes of the Catalytic Specialization of DNA Methyltransferases

Bryan Tsutomu Harada, University of Chicago, USA
m6A mRNA Methylation Regulates the Proliferation and Tumorigenicity of Endometrial Cancer

Hong Ji, Cincinnati Children's Hospital Medical Center, USA
Diesel Exhaust and House Dust Mite Allergen Alter TET1 Expression and Lead to Common Changes in Airway DNA Methylation

Brittany A. Elliott, Duke University, USA
Box C/D Small Nucleolar RNAs Regulate Gene Expression by Guiding 2 O-Methylation of mRNA

Marco Morselli, University of California, Los Angeles, USA
Bisulfite RNA-seq: Detection and Analysis of 5-methyl Cytosine in polyA-RNA with Next Generation Sequencing

Hyung Joo Lee, Washington University School of Medicine, USA
Cell Type-Specific DNA Methylation Is Associated with Cell Fate Restriction during Zebrafish Fin Regeneration

Other RNA Methylation

***Housheng Hansen He**, Princess Margaret Cancer Centre, Canada

Michaela Frye, University of Cambridge, UK
Regulatory Potential of Cytosine-5 Methylation in RNA

François Fuks, Université libre de Bruxelles, Belgium
Transcriptome-Wide Distribution and Function of RNA Modifications

Juan Alfonzo, Ohio State University, USA
Bridging the Gap between RNA Editing and Modification: A 10-Year Solution to a 20-Year Problem

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

FRIDAY, JANUARY 26

Departure