



# 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