Epigenetics impacts human health and disease. Data from a range of diseases (cancer, neurological and immunological disorders) have documented mutations, altered expression and copy number alterations in numerous epigenetic factors (histones, DNA and chromatin modifying enzymes, reader proteins, chromatin modulators and noncoding RNAs). Genome-wide data has also illustrated the relationship between altered epigenetic states (e.g., modified DNA and histones) and disease onset and progression. Therefore, there is a need to discover the molecular mechanisms and interplay between epigenetic regulators. These mechanistic insights will shed light on the impact epigenetic regulators have on cellular homeostasis, while resolving their pathogenic contribution to disease states. This conference is aimed at interrogating the most current knowledge surrounding the epigenetic events modulating nuclear function (gene expression regulation, enhancer modulation, domains and structural organization as well as cell division and differentiation), while relating this to developmental and disease models. In addition, this conference will highlight the impact that preclinical and clinical epigenetic therapeutics have on a panel of diseases including cancer and neurological disorders. By presenting these various aspects associated with epigenetics and diverse disease, this unique forum should promote dynamic discussions, interactions and collaborations that will impact our understanding of disease and possible treatment strategies. Opportunities for trainee career development, networking and oral presentations are provided by a “Focus on Junior Scientists” session, a panel discussion and mixer with scientific editors and another with industry scientists.

Session Topics:
- Epigenetics and Genome Organization
- From Epigenomics to Disease
- Epigenetic Modification Dynamics: Gateway to Understanding Disease
- Chromatin Modifiers, Development and Disease
- Epigenetics and Cell States
- Workshop: Breakthroughs in Technology and Disease

Scholarship Application & Discounted Abstract Deadline: September 29, 2016
Abstract Deadline: October 27, 2016
Discounted Registration Deadline: November 30, 2016
SUNDAY, JANUARY 29
Arrival and Registration

MONDAY, JANUARY 30
Welcome and Keynote Address
*Johnathan R. Whetstine, Massachusetts General Hospital, USA
*Jessica K. Tyler, Weill Cornell Medicine, USA
*Rab K. Prinjha, GlaxoSmithKline, UK
Rudolf Jaenisch, Whitehead Institute for Biomedical Research, USA

Epigenetics and Genome Organization
*Bradley E. Bernstein, Massachusetts General Hospital, USA
Thomas Misteli, NCI, National Institutes of Health, USA
Bas van Steensel, Netherlands Cancer Institute, Netherlands
Kadir Akdemir, MD Anderson Cancer Center, USA
Janneke Peeters, University Medical Center Utrecht, Netherlands

From Epigenomics to Disease
*Henk Stunnenberg, Radboud University, Netherlands
Bradley E. Bernstein, Massachusetts General Hospital, USA
Joseph F. Costello, University of California, San Francisco, USA
John A. Stamatoyannopoulos, University of Washington, USA
Daniel S. Day, Whitehead Institute, USA

Poster Session 1

TUESDAY, JANUARY 31
Epigenetic Modification Dynamics: Gateway to Understanding Disease
*Jessica K. Tyler, Weill Cornell Medicine, USA
Henk Stunnenberg, Radboud University, Netherlands
Shelley L. Berger, University of Pennsylvania, USA
Anne Schaefer, Mount Sinai School of Medicine, USA

Robert E. Kingston, Massachusetts General Hospital, USA
Nucleosome Compaction as a Regulatory Mechanism during Development
Panagiotis Ntziachristos, Northwestern University, USA
Short Talk: Targeting Deubiquitination in Acute Leukemia
Woojin An, University of Southern California, USA
Short Talk: MacroH2A Suppresses Prostate Cancer Bone Metastasis through Cooperation with HP1 and H1.2

Chromatin Modifiers, Development and Disease
*Anne Schaefer, Mount Sinai School of Medicine, USA
Jessica K. Tyler, Weill Cornell Medicine, USA
Chromatin Assembly and Disassembly
Johnathan R. Whetstine, Massachusetts General Hospital, USA
Epigenetic Mechanisms Impact Cell Cycle and Somatic DNA Copy Number
Peter W. Lewis, University of Wisconsin-Madison, USA
Short Talk: H3 K36M Oncohistone Promotes Sarcomagenesis through Altered Methylation Landscape

WEDNESDAY, FEBRUARY 1
Epigenetics and Cell States
*François Fuks, Université Libre De Bruxelles, Belgium
Emily Bernstein, Mount Sinai School of Medicine, USA
Epigenetic Sensitivities in Cancer
Luciano Di Croce, Centre for Genomic Regulation, Spain
Unveiling Polycomb Functions in Stem Cells and Cancer
María-Elena Torres-Padilla, Helmholz Centre Munich, Germany
Epigenetic Mechanisms in Early Mammalian Development
Gerald R. Crabtree, Stanford University, USA
Chromatin Remodeling: Insights from the Genetics of Human Disease and New Methods
Elizabeth Heller, University of Pennsylvania, USA
Short Talk: Targeted Neuroepigenetic Editing of Cdk5 Regulates Behavior
Ana Patricia Gomes, Weill Cornell Medicine, USA
Short Talk: The CAF1 Complex Promotes Tumor Progression through Re-Distribution of Histone H3.3 in the Chromatin

Poster Session 3

Workshop: Breakthroughs in Technology and Disease
*Cheryl Arrowsmith, University of Toronto, Canada
Hatice Efsun Arda, Stanford University, USA
Lineage Specific Regulomes of the Human Pancreas
Manfred Jung, University of Freiburg, Germany
Chemical Tools for Methyl Lysine Readers
Victoria Le, The Salk Institute of Biological Studies, USA
Finding Translocations in Cancer Genomes using Chromatin Interaction Data
Tonya Marie Gilbert, Massachusetts General Hospital, USA
In vivo HDAC Imaging in Schizophrenia using Combined MR-PET
**Epigenetics and Human Disease: Progress from Mechanisms to Therapeutics (A9)**

**January 29-February 2, 2017 • Sheraton Seattle Hotel • Seattle, Washington, USA**

**Scientific Organizers:** Johnathan R. Whetstine, Jessica K. Tyler and Rab K. Prinjha

**Sponsored by Incyte Corporation, Merck & Co., Inc., Taylor & Francis and Vertex Pharmaceuticals Incorporated**


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**Ari Allyn-Feuer**, University of Michigan Medical School, USA

*The Pharmacogenomics Informatics Pipeline: An Integrative Multi-Omics Platform for Variant Discovery*

**Nabieh Ayoub**, Technion University, Israel

*Characterizing the Biological Functions of KDM4A-D Interactions with RNA Molecules*

**Shinya Oki†**, Kyushu University, Japan

*The Transcription Factor Landscape Decodes the Enhancers and Risk Variants in Non-Coding Regions*

**Yael David**, Memorial Sloan Kettering Cancer Center, USA

*Towards Synthetic Chromatin: Modifying Histones In Live Cells Using Protein Trans-Splicing*

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**Emily Bernstein**, Mount Sinai School of Medicine, USA

*Modifications of RNA: Their Function and Role in Cancer*

**Tony Kouzarides**, University of Cambridge, UK

*Targeting Integrator in Cancer*

**Ramin Shiekhattar**, University of Miami, USA

*Principles of Epigenetics and Chromatin in Development and Human Disease*

**François Fuks**, Université Libre De Bruxelles, Belgium

*Short Talk: Transcriptome-Wide Distribution and Function of RNA Hydroxymethylcytosine*

**Guillermo Barreto**, Max Planck Institute for Heart and Lung Research, Germany

*Short Talk: Nuclear miRNA/exosome-Mediated Transcriptional Silencing within the Context of TGFB1 Signaling and Idiopathic Pulmonary Fibrosis*

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**Johnathan R. Whetstine**, Massachusetts General Hospital, USA

*Clinical Progression of BET Inhibitors*

**Cheryl Arrowsmith**, University of Toronto, Canada

*Probing the Epigenome for New Therapeutic Opportunities*

**Alexander Tarakhovsky**, Rockefeller University, USA

*Uncovering Histone Mimics and Disease*

**Jesse J. Smith**, Epizyme, USA

*The EZH2 Inhibitor Tazemetostat as a Potential Therapeutic for Non-Hodgkin Lymphoma and Genetically Defined Solid Tumors*

**Norm Wong**, Resverlogix Corporation, Canada

*Short Talk: Selective BET Inhibitors are Useful for Normalizing Inflammation Leading to Reduced Cardiovascular Disease (CVD) in Humans and in an Animal Model of Rheumatoid Arthritis*

**Shaokun Shu**, Dana-Farber Cancer Institute, USA

*Short Talk: Response and Resistance to BET Bromodomain Inhibitors in Triple Negative Breast Cancer*

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**Emily Bernstein**

*Modifications of RNA: Their Function and Role in Cancer*

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