



# Noncoding RNAs: Form, Function, Physiology

February 25–March 1, 2018 | Keystone Resort | Keystone, Colorado | USA

## Scientific Organizers:

**Joshua T. Mendell**, HHMI/University of Texas Southwestern Medical Center, USA

**Igor Ulitsky**, Weizmann Institute of Science, Israel

**Sohail F. Tavazoie**, Rockefeller University, USA

*Recent research has revealed pervasive transcription of eukaryotic genomes outside of protein-coding genes. The resulting noncoding RNA transcripts come in many forms, perform diverse functions and play critical roles in organismal health and disease. Tens of thousands of noncoding RNAs have been identified thus far, but we are still at the earliest stages of understanding their regulation and function. Such knowledge will be critical in order to harness the full potential of noncoding RNAs for the diagnosis and treatment of human diseases. To address this gap in our understanding, this conference aims to: 1) Bring together a multi-disciplinary group of scientists at all career stages to share their latest research in this field; 2) Provide a forum for the presentation of cutting-edge data on noncoding RNA structure, function and their roles in physiology and disease; and 3) Offer junior scientists outstanding mentoring and networking opportunities through close interactions with senior investigators. It is anticipated that the interactions of participants with diverse backgrounds, expertise and experimental models will spur new lines of investigation and collaborations that will lead to breakthroughs in our understanding of the noncoding transcriptome.*

## Session Topics:

- Evolution and Structure of Noncoding RNAs
- Prokaryotic and Viral Noncoding RNAs
- Noncoding RNAs in Epigenetic Regulation
- Workshop: Highlights of Submitted Abstracts
- Noncoding RNAs in Subcellular Organization
- Transcriptional and Post-Transcriptional Regulation by Noncoding RNAs
- Non-Canonical Roles of tRNAs, snoRNAs and Repetitive RNAs
- Noncoding RNAs in Disease
- Unconventional RNA Form and Function

**Scholarship Application & Discounted Abstract Deadline: October 24, 2017**

**Abstract Deadline: November 21, 2017**

**Discounted Registration Deadline: December 19, 2017**



Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

*Upper image of high throughput SNP genotyping system - nanodispenser courtesy of the Genetics and Genomics Branch of the National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH*

Meeting Hashtag: #KSncra

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on Molecular and Cellular Biology

## Noncoding RNAs: Form, Function, Physiology (C2)

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### SUNDAY, FEBRUARY 25

#### Arrival and Registration

### MONDAY, FEBRUARY 26

#### Welcome and Keynote Address

\***Joshua T. Mendell**, HHMI/University of Texas Southwestern Medical Center, USA

**Caroline Dean**, John Innes Centre, UK  
*Antisense-Mediated Chromatin Silencing at FLC*

#### Evolution and Structure of Noncoding RNAs

\***Joshua T. Mendell**, HHMI/University of Texas Southwestern Medical Center, USA

**Igor Ulitsky**, Weizmann Institute of Science, Israel  
*Sequences Enriched in Alu Repeats Drive Nuclear Localization of Long RNAs in Human Cells*

**Howard Y. Chang**, Stanford University, USA  
*Genome Regulation by Long Noncoding RNAs*

**Kevin Weeks**, University of North Carolina, USA  
*Structure-Based Discovery of New Functions in Large RNAs*

**Yashar Niknafs**, University of Michigan, USA  
*Short Talk: Oncogenic Role of THOR, a Conserved Cancer/Testis Long Noncoding RNA*

#### Prokaryotic and Viral Noncoding RNAs

\***Howard Y. Chang**, Stanford University, USA

**Jörg Vogel**, University of Würzburg, Germany  
*Grad-seq Discovers the Third Domain of Small RNA-mediated Gene Regulation in Bacteria*

**Ronald R. Breaker**, Yale University, USA  
*Comprehensive Discovery of Ribozymes and Riboswitches*

**Joan A. Steitz**, HHMI, Yale University, USA  
*Nuclear Noncoding RNAs: More Surprises*

**Roe Amit**, Technion - Israel Institute of Technology, Israel  
*Short Talk: Short CU-Rich Motifs Insulate Bacterial Genes from Transcriptional Read-Through*

#### Poster Session 1

### TUESDAY, FEBRUARY 27

#### Noncoding RNAs in Epigenetic Regulation

\***John L. Rinn**, University of Colorado Boulder, USA

**Jeannie T. Lee**, Massachusetts General Hospital, USA  
*How RNA Recruits Epigenetic Complexes to the X-Chromosome*

**Neil Brockdorff**, University of Oxford, UK  
*Chromosome Silencing by Xist RNA*

**Roberto Bonasio**, University of Pennsylvania, USA  
*Regulation of Chromatin Complexes by Protein-RNA Interactions*

**Xiaohua Shen**, Tsinghua University, China  
*Cis-Acting lncRNAs in Transcription and Chromatin Regulation*

**Chen Davidovich**, Monash University, Australia  
*Short Talk: Mechanism for RNA-Mediated Regulation of the Histone Methyltransferase Polycomb Repressive Complex 2 (PRC2)*

**Amanda J. Whipple**, Massachusetts Institute of Technology, USA  
*Short Talk: Neuronal Functions of Imprinted, Noncoding RNAs*

#### Workshop: Highlights of Submitted Abstracts

\***Susan B. Carpenter**, University of California, Santa Cruz, USA

\***David L. Spector**, Cold Spring Harbor Laboratory, USA

**Amanda Louise Gervaise**, Baylor College of Medicine, USA  
*Global Profiling Identifies Germline miRNAs Functioning During Oogenesis in C. elegans*

**Yunsun Nam**, University of Texas Southwestern Medical Center, USA  
*Heme Enables Proper Positioning of Drosha and DGCR8 on Primary microRNAs*

**Yoo Jane Han**, University of Chicago, USA  
*Circular RNAs Expressed from the BRCA1 Pseudogene Regulates the DNA Damage Response through SERBP1 RNA-Binding Protein*

**Rui Zhou**, Sanford-Burnham Medical Research Institute, USA  
*The Circular RNA Edis Modulates Innate Immunity and Neurodevelopment in Drosophila*

**Andre Verdel**, Institut Albert Bonniot, France  
*A New lncRNA-based Mechanism Controlling Sexual Differentiation and Heterochromatin Gene Silencing in Fission Yeast*

**Martina Rossi**, University of Genoa, Italy  
*LncRNA EPR Orchestrates Epithelial Gene Expression Program in Mammary Gland Cells*

**Musaddeque Ahmed**, Princess Margaret Cancer Centre, Canada  
*CRISPRi Screening of Susceptibility Regulatory Regions and Long Noncoding RNAs in Prostate Cancer*

**Joon H. Choi**, University of Texas at Austin, USA  
*The Triphosphatase DUSP11 Controls the Level and Immunostimulatory Activity of Alu Transcripts*

#### Noncoding RNAs in Subcellular Organization

\***Jeannie T. Lee**, Massachusetts General Hospital, USA

**Tetsuro Hirose**, Hokkaido University, Japan  
*Dissection of Elements and Machinery of Architectural Noncoding RNAs*

**David L. Spector**, Cold Spring Harbor Laboratory, USA  
*Targeting Long Noncoding RNAs to Impact Breast Cancer Progression*

**John L. Rinn**, University of Colorado Boulder, USA  
*High-Throughput Identification of RNA Nuclear Enrichment Sequences*

**Miha Modic**, Helmholtz Zentrum München, Germany  
*Short Talk: Cross-Regulation between TDP-43 and Paraspeckles Promotes Pluripotency-Differentiation Transition*

#### Poster Session 2

### WEDNESDAY, FEBRUARY 28

#### Transcriptional and Post-Transcriptional Regulation by Noncoding RNAs

\***Matthias W. Hentze**, European Molecular Biology Laboratory, Germany

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**Reuven Agami**, Netherlands Cancer Institute, Netherlands  
*Transcriptional Control by lncRNAs*

**Susan B. Carpenter**, University of California, Santa Cruz, USA  
*Genetic Models Reveal Cis and Trans Functions for lincRNA-Cox2*

**Joshua T. Mendell**, HHMI/University of Texas Southwestern Medical Center, USA  
*Noncoding RNAs in Post-Transcriptional Regulatory Circuits*

**Irene Bozzoni**, University La Sapienza, Rome, Italy  
*Long Noncoding RNAs and Circular RNAs in the Control of Muscle Differentiation*

**Olof S. Dallner**, Rockefeller University, USA  
*Short Talk: Quantitative Regulation of the Leptin Gene by a Fat-Specific lncRNA*

**Ramesh S. Pillai**, University of Geneva, Switzerland  
*Short Talk: Regulation of m6A Transcripts by YTHDC2 Is Essential for Meiosis in the Mammalian Germline*

### Non-Canonical Roles of tRNAs, snoRNAs, and Repetitive RNAs

\***Irene Bozzoni**, University La Sapienza, Rome, Italy

**Sohail F. Tavazoie**, Rockefeller University, USA  
*tRNA Fragments in Hypoxic Response and Cancer Progression*

**Britt Glaunsinger**, University of California, Berkeley and HHMI, USA  
*Repetitive Noncoding RNAs in Viral Pathogenesis*

**Matthias W. Hentze**, European Molecular Biology Laboratory, Germany  
*Regulation of Selective Autophagy by the Small Noncoding Vault RNA1-1*

**Benjamin R. Hawley**, University of Leicester, UK  
*Short Talk: Drosha Drives the Formation of DNA:RNA Hybrids around DNA Break Sites to Facilitate DNA Damage Repair*

### Poster Session 3

#### THURSDAY, MARCH 1

##### Noncoding RNAs in Disease

\***Sohail F. Tavazoie**, Rockefeller University, USA

**Stefanie Dimmeler**, University of Frankfurt, Germany  
*Noncoding RNAs in Cardiovascular Diseases*

**Nadya Dimitrova**, Yale University, USA  
*Investigation of Long Noncoding RNAs in Tumorigenesis*

**Caroline Woo**, Translate Bio, USA  
*Targeting lncRNAs for Gene Upregulation Using Oligonucleotides as a Therapeutic Modality*

**Stefano Gustincich**, Italian Institute of Technology, Italy  
*SINEUPS: A Versatile Tool to Increase Protein Synthesis*

**Ashish Lal**, NCI, National Institutes of Health, USA  
*Short Talk: Regulating the Regulator: Long Noncoding RNAs in the p53 Network in Colorectal Cancer*

**Doug Hanniford**, New York University Langone Medical Center, USA  
*Short Talk: CDR1as Arises from a lncRNA Transcript which Is Epigenetically Silenced to Drive Melanoma Metastasis*

##### Unconventional RNA Form and Function

\***Igor Ulitsky**, Weizmann Institute of Science, Israel

**Jeremy E. Wilusz**, University of Pennsylvania, USA  
*Controlling Circular RNA Levels*

**Lingling Chen**, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, China  
*Biogenesis of Circular RNAs*

**Antonio J. Giraldez**, Yale University School of Medicine, USA  
*Noncoding RNAs and Peptides in Zebrafish Development*

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

#### FRIDAY, MARCH 2

##### Departure