

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Mobile Genetic Elements and Genome Plasticity (B7)

February 11-15, 2018 • Eldorado Hotel & Spa • Santa Fe, New Mexico, USA

Scientific Organizers: Marlene Belfort, Evan E. Eichler, Henry L. Levin and Lynne E. Maquat

Supported by the Directors' Fund

Abstract & Scholarship Deadline: October 12, 2017 / Abstract Deadline: November 14, 2017 / Discounted Registration Deadline: December 14, 2017

### SUNDAY, FEBRUARY 11

#### Arrival and Registration

### MONDAY, FEBRUARY 12

#### Welcome and Keynote Address

**Emmanuelle Charpentier**, Max Planck Institute for Infection Biology, Humboldt University and The Laboratory for Molecular Infection Medicine Sweden, Germany  
*Limitation of Horizontal Gene Transfer by CRISPR-Cas Systems in Bacteria: Mechanisms and Plasticity*

#### Mechanisms and Results of Genome Editing

**Feng Zhang**, Broad Institute of MIT and Harvard University, USA  
*Mining Microbial Diversity for Genome Editing*

**Laura Landweber**, Columbia University, USA  
*Programmed Genome Rearrangements in the Ciliate *Oxytricha**

**Josh T. Dubnau**, Stony Brook University, USA  
*Retrotransposon Activation Contributes to non-cell autonomous Neurodegeneration in a *Drosophila* TDP-43 Model of ALS*

**Short Talk(s) Chosen from Abstracts**

#### Poster Session 1

#### Workshop 1: Genome Editing Tools and Computational Methods

##### Short Talks Chosen from Abstracts

#### Dynamics of Plasticity

**Marlene Belfort**, University of Albany, SUNY, USA  
*Mobile Introns, Inteins and Genome Plasticity*

**Jeffrey L. Bennetzen**, University of Georgia, USA  
*Angiosperm Transposon Dynamics and the Generation of the Flowering Plant Genome*

**Lingling Chen**, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, China  
*Protein Arginine Methyltransferase CARM1 Attenuates the Paraspeckle-Mediated Nuclear Retention of mRNAs*

**Short Talk Chosen from Abstracts**

### TUESDAY, FEBRUARY 13

#### Taming Mobile DNA Activity: Self and Non-Self Recognition

**Shiv I. S. Grewal**, NCI, National Institutes of Health, USA  
*Epigenetics in *S. Pombe**

**R. Keith Slotkin**, Ohio State University, USA  
*Establishment of Heterochromatin: How the Cell Triggers Transposable Elements for Trans-Generational Silencing*

**Brenda L. Bass**, University of Utah, USA  
*The Functions of the dsRNAome*

**Mikiko C. Siomi**, University of Tokyo, Japan  
*PIWI-Interacting RNA: Its Biogenesis and Functions*

**Short Talk(s) Chosen from Abstracts**

#### The Action of Mobile DNA in the Brain and in Cancer

**Geoffrey J. Faulkner**, Queensland Brain Institute, Australia  
*L1 Mobilization during Mammalian Development*

**Haig H. Kazazian**, Johns Hopkins University School of Medicine, USA  
*A Potential Role for Somatic Retrotransposition in Oncogenesis*

**Kathleen H. Burns**, Johns Hopkins University School of Medicine, USA  
*Roles of Human Transposable Elements in Disease*

**Short Talk Chosen from Abstracts**

#### Poster Session 2

### WEDNESDAY, FEBRUARY 14

#### Regulation and Biological Impact of Mobile Elements

**Cedric Feschotte**, University of Utah, USA  
*Fighting Fire with Fire: Endogenous Retroviruses Orchestrate the Innate Immune Response*

**Ruth Lehmann**, New York University School of Medicine, USA  
*The Cellular Basis of Hybrid Dysgenesis in *Drosophila**

**Lynne E. Maquat**, University of Rochester Medical Center, USA  
*Evidence For Convergent Evolution of SINE-Directed Staufen-Mediated mRNA Decay*

**Henry L. Levin**, National Institutes of Health, USA  
*Retrotransposon Integration Rewires Gene Regulatory Networks in Response to Stress*

**Short Talk(s) Chosen from Abstracts**

#### Genome Structural Variation

**Evan E. Eichler**, HHMI/University of Washington, USA  
*Dynamic Duplications and Primate Genome Evolution*

**Fred (Rusty) H. Gage**, The Salk Institute for Biological Studies, USA  
*Environment-Driven Somatic Mosaicism in Brain Disorders*

**Christopher A. Walsh**, Children's Hospital Boston, USA  
*L1 Retrotransposition and Somatic Mutation in the Human Brain*

**Short Talk Chosen from Abstracts**

#### Poster Session 3

### THURSDAY, FEBRUARY 15

#### Retrotransposition and Gene Regulation

**Joanna Wysocka**, Stanford University School of Medicine, USA  
*Intrinsic Retroviral Reactivation in Human Preimplantation Embryos and Pluripotent Cells*

**M. Joan Curcio**, Wadsworth Center, USA  
*The Ty1 Retrotransposon and Asymmetric Cell Division*

**Pascale Lesage**, Institut Universitaire d'Hématologie, France  
*Regulation of the Yeast Ty1 Retrotransposon Integration Site Selection*

**Robert A. Martienssen**, Cold Spring Harbor Laboratory, USA  
*The Expanding World of Small RNAs in Plants*

**Short Talk(s) Chosen from Abstracts**

#### Workshop 2

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#### LINE1 Dances and Transposon Architecture

**John V. Moran**, University of Michigan Medical School, USA  
*A 3' Poly(A) Tract Is Required for LINE-1 Retrotransposition*

**Gael Cristofari**, IRCAN - INSERM/CNRS, France  
*Genomic Approaches to Study the Activity of Human LINE-1 Elements*

**Jef D. Boeke**, NYU Langone Medical Center, USA  
*How Retrotransposons Shape Genome Regulation*

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

### FRIDAY, FEBRUARY 16

#### Departure