

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Precision Genome Editing with Programmable Nucleases (B1)

January 28-February 1, 2018 • Keystone Resort • Keystone, Colorado, USA

Scientific Organizers: Jin-Soo Kim, Feng Zhang and Daniel F. Voytas

Supported by the Directors' Fund

Abstract & Scholarship Deadline: October 3, 2017 / Abstract Deadline: November 1, 2017 / Discounted Registration Deadline: December 5, 2017

### SUNDAY, JANUARY 28

#### Arrival and Registration

### MONDAY, JANUARY 29

#### Welcome and Keynote Address

**Jennifer A. Doudna**, HHMI/University of California, Berkeley, USA  
*Talk Title to be Announced*

#### DNA Repair and Genome Editing

**Daniel Durocher**, Lunenfeld-Tanenbaum Research Institute, Canada  
*Charting DNA Repair Pathways: Implications for Genome Editing*

**Maria Jasin**, Memorial Sloan Kettering Cancer Center, USA  
*Talk Title to be Announced*

**Eric A. Hendrickson**, University of Minnesota Medical School, USA  
*The Mechanism of Cas9/CRISPR-Initiated Genome Modification*

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

#### Genome Editing Methods and Novel Tools I

**Feng Zhang**, Broad Institute of MIT and Harvard University, USA  
*Genome Editing with Cas9 and Cpf1*

**David R. Liu**, Harvard University, USA  
*Programmable Editing of a Target Base in Genomic DNA without Double-Stranded DNA Cleavage*

**J. Keith Joung**, Massachusetts General Hospital, USA  
*Defining, Optimizing, and Modifying the Activities and Specificities of Genome-Editing Nucleases*

#### Short Talk Chosen from Abstracts

#### Poster Session 1

### TUESDAY, JANUARY 30

#### Genome Editing Methods and Novel Tools II

**Scot A. Wolfe**, University of Massachusetts Medical School, USA  
*DNA-Binding-Domain Fusions Enhance the Targeting Range and Precision of Cas9*

**Jin-Soo Kim**, Seoul National University, South Korea  
*Genome Editing in Human Stem Cells, Animals, and Plants*

**Jacob E. Corn**, University of California, Berkeley, USA  
*Molecular Mechanisms of Genome Editing*

**Keiji Nishida**, Kobe University, Japan  
*Genome Editing with Non-Nuclease Modifiers in Bacteria to Plants*

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

#### Epigenome Editing and Gene Regulation

**Charles Gersbach**, Duke University, USA  
*Epigenome Editing for Gene Therapy and Disease Modeling*

**Lei (Stanley) Qi**, Stanford University, USA  
*CRISPRi and CRISPRa Mediated Screens*

**Jennifer Mitchell**, University of Toronto, Canada  
*Uncovering Distal Regulatory Element Function using CRISPR Genome Engineering*

#### Short Talk Chosen from Abstracts

#### Poster Session 2

### WEDNESDAY, JANUARY 31

#### Genetic Screening via CRISPR

**David M. Sabatini**, Whitehead Institute for Biomedical Research, USA  
*An Essential Role of the Mitochondrial Electron Transport Chain in Cell Proliferation Is to Enable Aspartate Synthesis*

**Reuven Agami**, Netherlands Cancer Institute, Netherlands  
*Genetic Screens for Non-Coding Elements*

**Neville Sanjana**, New York Genome Center & NYU, USA  
*New Frontiers for Pooled Screens: Finding Regulatory Elements in the Noncoding Genome and Capturing Multi-Cell Interactions*

**Danwei Huangfu**, Memorial Sloan-Kettering Cancer Institute, USA  
*Genetic Screens in Human Pluripotent Stem Cells*

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

#### Therapeutic Genome Editing

**Edward J. Rebar**, Sangamo Therapeutics, Inc., USA  
*Engineering Zinc Finger Nucleases for Therapeutic Applications*

**Amy J. Wagers**, Harvard University, USA  
*In vivo Gene Editing in Dystrophic Mouse Muscle and Muscle Stem Cells*

**Charles F. Albright**, Editas Medicine, USA  
*Genome Editing for the Treatment of Genetic Diseases*

#### Short Talk Chosen from Abstracts

#### Poster Session 3

### THURSDAY, FEBRUARY 1

#### Plant and Animal Biotechnology

**Dan Carlson**, Recombinetics, Inc., USA  
*Animal Genome Editing*

**Caixia Gao**, Chinese Academy of Sciences, China  
*Precise Plant Engineering with Genome Editing Tools*

**Daniel F. Voytas**, University of Minnesota, USA  
*Crop Improvement Using TALENs*

**Weizhi Ji**, Kunming University of Science and Technology, China  
*Precise Gene Editing in Non-Human Primates*

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

#### Human Germline Editing and ELSI

**Kathy K. Niakan**, Francis Crick Institute, UK  
*Genetic Editing for Studying Early Human Embryonic Development*

**Shoukrat Mitalipov**, Oregon Health & Science University, USA  
*Human Germline Gene Correction*

**Tetsuya Ishii**, Hokkaido University, Japan  
*The Potential Guidelines for Germline Genome Editing in Clinics*

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

### FRIDAY, FEBRUARY 2

#### Departure