

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Genome Engineering: From Mechanisms to Therapies (B4)

February 19-23, 2019 • Fairmont Empress Victoria • Victoria, British Columbia, Canada

Scientific Organizers: Andrew May, Rodolphe Barrangou and Knut Woltjen

Supported by the Directors' Fund

Abstract & Scholarship Deadline: October 18, 2018 / Abstract Deadline: November 20, 2018 / Discounted Registration Deadline: December 19, 2018

TUESDAY, FEBRUARY 19

Arrival and Registration

WEDNESDAY, FEBRUARY 20

Welcome and Keynote Address

Philip D. Gregory, Bluebird Bio, USA
Talk Title to be Announced

Genome Engineering Tools and Technologies

Speaker to be Announced

Zoltan Ivics, Paul Ehrlich Institute, Germany
Transposons: Molecular Parasites Tamed for Advanced Genome Engineering

Alexis C. Komor, University of California, San Diego, USA
Early Career Talk: Introduction of Specific Single-base Mutations by Programmable Deaminases

Short Talk(s) Chosen from Abstracts

Workshop 1: Tools and Technologies

Short Talks Chosen from Abstracts

Structure and Mechanism of Genome Editing Systems

Speaker to be Announced

Barry L. Stoddard, Fred Hutchinson Cancer Research Center, USA
Engineering and Characterization of MegaTAL Nucleases for Genome Modification

Osamu Nureki, University of Tokyo, Japan
Structure and Mechanism of RNA-Programmable Nucleases

Short Talk Chosen from Abstracts

Poster Session 1

THURSDAY, FEBRUARY 21

Engineered Models of Genetic Disease

Danwei Huangfu, Memorial Sloan Kettering Cancer Institute, USA
Human Pluripotent Stem Cells as Models for Genetic Disease

Knut Woltjen, CiRA, Kyoto University, Japan
Isogenic Models of Disease from Induced Pluripotent Stem Cells

Amy J. Wagers, Harvard University, USA
Gene Editing in Stem Cells

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Workshop 2: Delivery

Short Talks Chosen from Abstracts

Design and Engineering of Cellular Devices

Wilson Wong, Boston University, USA
Design of Mammalian Cells with Robust Control of Input and Output Signals

Timothy K. Lu, Massachusetts Institute of Technology, USA
Synthetic Gene Circuits for Next-Generation Therapeutics

Charles Gersbach, Duke University, USA
Cell Programming with Genome Engineering Technologies
Short Talk Chosen from Abstracts

Poster Session 2

FRIDAY, FEBRUARY 22

Genome Editing Screens for Function and Disease Mechanisms

Fyodor D. Urnov, Altius Institute for Biomedical Sciences, USA
Editing Human Genome Control Circuits to Reveal Disease Mechanisms and Targets for Intervention in the Clinic

Jan E. Carette, Stanford University, USA
CRISPR-Cas Screens for Studying Virus-Host Interactions

Andrew May, Chan Zuckerberg Biohub, USA
Genome Editing and Single-Cell Genomics for Functional Analysis of Complex Multicellular Systems

Brittany Adamson, University of California, San Francisco, USA
Early Career Talk: Perturb-Seq: Combining High throughput CRISPR Screening with Single-Cell Sequencing

Short Talk(s) Chosen from Abstracts

Harnessing DNA Repair Mechanisms for Genome Engineering

Maria Jasin, Memorial Sloan Kettering Cancer Center, USA
Homologous Recombination and End-Joining Mechanisms in Genome Editing

Jacob E. Corn, University of California, Berkeley, USA
Harnessing Mechanistic Insights to Drive Improved Homology-Dependent Repair

Nancy Maizels, University of Washington School of Medicine, USA
Mechanisms of Repair at Targeted DNA Nicks

Short Talk Chosen from Abstracts

Poster Session 3

SATURDAY, FEBRUARY 23

Genome Engineering of Bacteria for Therapeutic and Diagnostic Applications

Rodolphe Barrangou, North Carolina State University, USA
Engineered Lactobacilli for Human Health Applications

Jason M. Peters, University of California San Francisco, USA
Bacterial CRISPRi Screens to Identify the Mode of Action of Novel Antibiotics

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Workshop 3: Clinical Trial Update

Short Talks Chosen from Abstracts

Genome Editing for Treating Human Disease

Bruce R. Conklin, Gladstone Institutes, USA
Genome Surgery for Treating Neuronal Disorders

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Paula M. Cannon, University of Southern California, Keck School of Medicine, USA

Genome Editing to Treat Hematopoietic Disorders and Infectious Diseases

Michel Sadelain, Memorial Sloan Kettering Cancer Center, USA

Genome Edited CAR-T Cells for Improved Treatment of Solid Tumors

Juan Carlos Izpisua-Belmonte, The Salk Institute for Biological Studies, USA

Engineering Stem Cells in vivo for Therapeutic Benefit

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

SUNDAY, FEBRUARY 24

Departure