**SUNDAY, MARCH 7**

Arrival and Registration

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**MONDAY, MARCH 8**

Welcome and Keynote Address (X2)

Austin Burt, Imperial College London, UK

*Genes in Conflict: From Nature to Lab and Back*

Welcome and Keynote Address (X1)

Tim W. Yu, Boston Children's Hospital, USA

*Developing Custom Genetic Therapies*

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**Selfish Strategies (X2)**

Cedric Feschotte, Cornell University, USA

*Selfish Strategies of TEs*

Daven Presgraves, University of Rochester, USA

*Meiotic Drive: Drive by Interference*

Lila Fishman, University of Montana, USA

*A Selfish Centromere in the Wild*

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**Short Talks Chosen from Abstracts**

Mechanisms of Editing and Epi-Editing (X1)

Jacob E. Corn, ETH in Zurich, Switzerland

*How Cells Deal with Cas-Based Tools*

Bas van Steensel, Netherlands Cancer Institute, Netherlands

*Probing Genome Regulation*

Speaker to be Announced

Short Talks Chosen from Abstracts

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**Workshop 1: Speed Networking (X2)**

Theory and Experience with No-Threshold Engineered Gene Drives (X2)

Omar S. Akbari, University of California, San Diego, USA

*Homing-Based Drive Systems*

Maciej Maselko, Macquarie University, Australia

*Underdominance via Engineered Genetic Incompatibility*

Ethan Bier, University of California, San Diego, USA

*Gene-Drives and Other Active Genetic Systems*

Short Talks Chosen from Abstracts

Molecular Engineering of Editors and Epi-Editors (X1)

Nicole Gaudelli, Beam Therapeutics, USA

*Therapeutic Application of Cytosine and Adenine Base Editors*

Samuel H. Sternberg, Columbia University, USA

*Targeted DNA Integration using CRISPR RNA-Guided Transposases*

Cecilia Cotta-Ramusino, TESSERA Therapeutic, USA

*New Editing Technologies*

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**TUESDAY, MARCH 9**

Dynamics of Natural Drive (X2)

Anna K. Lindholm, University of Zurich, Switzerland

*Population Biology of t-Haplotype*

Hanna Johannesson, Uppsala University, Sweden

*Spore Killers*

Kelly Dyer, University of Georgia, USA

*Drive Dynamics in Drosophila*

Andreas Houben, Leibniz Institute of Plant Genetics and Crop Plant Research, Germany

*B Chromosome Drive*

Short Talks Chosen from Abstracts

Therapeutics I: Ex Vivo Editing (X1)

Rachel E. Haurwitz, Caribou Biosciences, Inc., USA

*The Future is Allogeneic - Translating a CRISPR Platform into Gene-Edited Cell Therapies*

Speaker to be Announced

Gene Editing for Blood Disorders

Matthew Porteus, Stanford University School of Medicine, USA

*Gene Editing for Hemoglobinopathies and Immunodeficiencies*

Chiara Bonini, Ospedale San Raffaele, Italy

*Stem Cell Transplantation*

Short Talks Chosen from Abstracts

Workshop/Panel Discussion 2: Ethical, Social and Community Considerations in Using Gene Drive Technologies (X2)

Spatially and Temporally Restricted Gene Drives (X2)

Luke S. Alphey, Pirbright Institute, UK

*Underdominance-Like Systems*

Bruce A. Hay, California Institute of Technology, USA

*Cleave and Rescue and other Drive Architectures*

George K. Christophides, Imperial College London, UK

*Split-Drive Systems for Mosquitoes*

Short Talks Chosen from Abstracts

Therapeutics II: In Vivo Editing (X1)

Leonela Amoasii, Exonics Therapeutics, USA

*Gene Editing for Muscular Dystrophy*

Fyodor D. Urnov, University of California, Berkeley, USA

*Towards a CRISPRi/a Therapeutic for Radiation Injury*

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* Session Chair † Invited but not yet accepted  
Program current as of March 28, 2020. Program subject to change. Meal formats are based on meeting venue. 
For the most up-to-date details, visit https://www.keystonesymposia.org.
**KEYSTONE SYMPOSIA**

**Gene Drives and Selfish Genetic Elements (X2)**

Scientific Organizers: David A. O’Brochta, Fred Gould, Amanda Larracuente and Owain Edwards

**Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation**

**Precision Engineering of the Genome, Epigenome and Transcriptome (X1)**

Scientific Organizers: Charles Gersbach, Rachel E. Haurwitz and Fyodor D. Urnov

March 7-11, 2021 • Whistler Conference Centre • Whistler, BC, Canada

Supported by the Directors’ Fund

Global Health Travel Award Deadline: October 6, 2020 / Scholarship Deadline: November 18, 2020 / Abstract Deadline: December 9, 2020 / Discounted Registration Deadline: January 7, 2021

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**Charles Gersbach**, Duke University, USA  
*In Vivo Therapeutic CRISPRi/a Approaches*

**Short Talks Chosen from Abstracts**

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**Poster Session 2**

**WEDNESDAY, MARCH 10**

**Natural Drive Mechanisms (X2)**

- **Amanda Larracuente**, University of Rochester, USA  
  *Molecular Mechanisms of Meiotic Drive in Drosophila*

- **Sarah Zanders**, Stowers Institute for Medical Research, USA  
  *wtf Genes and Meiotic Drive Mechanisms in Yeasts*

- **Seth Bordenstein**, Vanderbilt University, USA  
  *Wolbachia-Mediated Cytoplasmic Incompatibility*

- **Marce Lorenzen**, North Carolina State University, USA  
  *Medea Systems in Insects*

**Short Talks Chosen from Abstracts**

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**Delivery (X1)**

- **Kathryn Whitehead**, Carnegie Mellon University, USA  
  *Non-Viral Lipid Nanoparticles for RNA Delivery and Gene Editing*

- **Aravind Asokan**, Duke University, USA  
  *Engineering AAV for Targeted In Vivo Editing*

- **James Dahlman**, Georgia Tech / Emory Medical School, USA  
  *Delivering Gene Editing Components by Testing Thousands of Nanoparticles in vivo*

**Speaker to be Announced**

**Short Talks Chosen from Abstracts**

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**Workshop 3: Early Career Professional Short-Talks (X2)**

**Short Talks Chosen from Abstracts**

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**Drive Suppressors and Resistance (X2)**

- **Catherine Montchamp-Moreau**, Paris-Saclay University, France  
  *Suppressors of Sex Chromosome Drive in D. simulans*

- **Séverine Chambeyron**, Institute of Human Genetics, France  
  *Impact of Endogenous Retrovirus Movement on Drosophila Melanogaster Genome*

- **Philipp W. Messer**, Cornell University, USA  
  *Drive Suppression/Resistance*

**Short Talks Chosen from Abstracts**

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**Controlling CRISPR (X1)**

- **Ahmad S. Khalil**, Boston University, USA  
  *TBD*

- **Hyongbum Henry Kim**, Yonsei University College of Medicine, South Korea  
  *High-Throughput Analysis and Prediction of Genome Editing Outcomes*

**Speaker to be Announced**

**Short Talks Chosen from Abstracts**

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**Poster Session 3**

**THURSDAY, MARCH 11**

**Modelling Selfish Genetic Elements - Natural and Synthetic (X2)**

- **Fred Gould**, North Carolina State University, USA  
  *How Population Structure could Impact Gene Drives*

- **Penny Hancock**, University of Oxford, UK  
  *Demographic Models of the Spread of Selfish Genetic Elements in Aedes Aegypti Arbovirus Vector Populations*

- **Robert Unckless**, University of Kansas, USA  
  *Meiotic Drive Population Extinction, Speciation and Sex-Chromosome Evolution*

- **Manus M. Patten**, Georgetown University, USA  
  *Multi-locus Models of Drive*

**Short Talks Chosen from Abstracts**

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**RNA Editing (X1)**

- **Patrick D. Hsu**, University of California, Berkeley, USA  
  *Novel RNA Editing Systems*

- **Kathie Bishop†**, Locana, USA  
  *RNA Targeting Technologies and Therapeutic Applications*

- **Prashant Mali**, University of California, San Diego, USA  
  *University of California San Diego, USA - Endogenous RNA Editing Systems*

**Speaker to be Announced**

**Short Talks Chosen from Abstracts**

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**Technology Applications in the Field (X2)**

- **Anthony A. James**, University of California, Irvine, USA  
  *UC-Malaria Initiative: Mosquito Population Modification to Control Malaria Transmission*

- **Aboulaye Diabaté†**, Institut de Recherche en Sciences de la Santé/Centre Muraz, Bobo-Dioulasso, Burkina Faso  
  *Target Malaria*

- **Owain Edwards**, Commonwealth Scientific and Industrial Research Organisation, Australia  
  *In silico Assessments of Feasibility and Risk for Gene Drives against Feral Cats in Australia*

**Short Talks Chosen from Abstracts**

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**Single Cell Technologies (X1)**

- **John G. Doe**, Broad Institute of MIT and Harvard University, USA  
  *Latest Improvements to Screening Tools*

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Britt S. Adamson, Princeton University, USA
*Single Cell Sequencing Technologies*
**Speaker to be Announced**

Jonathan S. Weissman, University of California, San Francisco, USA
*Genome-Wide Screening Technologies*
**Short Talks Chosen from Abstracts**

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

*FRIDAY, MARCH 12*

**Departure**