SUNDAY, MARCH 19
Arrival and Registration

MONDAY, MARCH 20
Welcome and Keynote Session (Joint)
Speaker to be Announced

Titia de Lange, Rockefeller University, USA
APOBEC3-Dependent Kataegis and TREX1-Driven Chromothripsis During Telomere Crisis

Genome Instability and Cancer (Joint)
Tanya T. Paull, University of Texas at Austin, USA
Regulation of DNA Double-Strand Break Repair and Oxidative Stress Signaling

Simon J. Boulton, Francis Crick Institute, UK
DNA Repair Mechanisms in Cancer and Therapy Approaches

Stephen C. West, Francis Crick Institute, UK
DNA Repair – Structures and Mechanisms

Short Talks Chosen from Abstracts

Workshop 1: The Past and Future of DNA Repair/Replication (X1)

Short Talks Chosen from Abstracts

Roundtable Discussion: Genome Editing Ethics (X2)

Fork Protection and Cancer Therapy (X1)

Alessandro Vindigni, Washington University, USA
PRIMPOL-Mediated Adaptive Response Suppresses Replication Fork Reversal in BRCA-Deficient Cells

Sharon B. Cantor, University of Massachusetts Medical School, USA
Replication Gaps Underlie BRCA Deficiency and Therapy Response

Li Lan, Massachusetts General Hospital, USA
Understanding and Targeting R-Loops and mRNA-Dependent DNA Repair in Cancer

Short Talks Chosen from Abstracts

Natural Editing and Repair Mechanisms (X2)

Toni Cathomen, University Medical Center Freiburg, Germany
Quantitative Evaluation of Chromosomal Rearrangements in Gene-Edited Human Stem Cells by CAST-Seq

Anna Kwilas†, Food and Drug Administration, USA
Regulatory Approach for Gene Editing: CBER Perspective

Speaker to be Announced

Poster Session 1

TUESDAY, MARCH 21
Nuclear and Chromatin Dynamics in DNA Repair (X1)

Gaëlle Legube, Université Paul Sabatier, France
Chromosome Reorganization During DNA Double Strand Break Repair

Irene Chiolo, University of Southern California, USA
DNA Repair Mechanisms in Heterochromatin

Matthias Altmeyer, University of Zurich, Switzerland
Dynamics and Functions of DNA Repair Compartments

Karim Mekhail, University of Toronto, Canada
Nuclear Dynamics and Phase Separation for DSB Repair in Yeast

Short Talks Chosen from Abstracts

Plant and Animal Science Gene Editing Applications and Regulatory Path (X2)

Catherine Feuillet, Inari Agriculture, USA
SEEDesign Gene Editing: Gateway to New Future of Plant Breeding

Rodolphe Barrangou, North Carolina State University, USA
CRISPR-Cas and Food: Implications for the Future

Caixia Gao, Chinese Academy of Sciences, China
Applications of CRISPR-Cas in Agriculture and Plant Biotechnology

Irina A. Polejaeva, Utah State University, USA
Advancing Large Animal Model Development using CRISPR/Cas 9 Editing

Short Talks Chosen from Abstracts

Workshop 2: New Approaches and Technologies to Study Genome Stability (X1)

Workshop: Career Development (X2)

Inflammation and Genomic Instability (X1)

Karl-Peter Hopfner, Ludwig-Maximilians-University Munich, Germany
Structures of MRE11 and cGAS

Katharina Schlacher, MD Anderson Cancer Center, USA
Mitochondrial and Nuclear BRCA/FANC DNA Replication Stability in Disease and Cancer

Roger Greenberg, University of Pennsylvania, USA
Genome Instability and Inflammation

Short Talks Chosen from Abstracts

Delivery of Gene Editors: Potency, Biodistribution, Safety (X2)

Daniel J. Siegwart, University of Texas Southwestern Medical Center, USA
Selective Organ Targeting (SORT): A Strategy for Effective Tissue Specific mRNA Delivery and CRISPR/Cas Gene Editing

* Session Chair † Invited but not yet accepted
Program current as of November 17, 2022 Meal formats are based on meeting venue. For the most up-to-date details, visit https://www.keystonesymposia.org.
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology
Genomic Instability and DNA Repair (X1)
Scientific Organizers: Katharina Schlacher, Irene Chiolo and Ralph Scully
Sponsored by (Cell Research), Chinese Society for Cell Biology and Pfizer Inc.
Precision Genome Engineering (X2)
Scientific Organizers: Laura Sepp-Lorenzino and Matthew Porteus
March 19-23, 2023 • Fairmont Chateau Whistler • Whistler, BC, Canada
Sponsored by (Cell Research), Chinese Society for Cell Biology, Synthego and Ultragenyx Pharmaceutical Inc.
Scholarship Deadline: December 14, 2022 / Abstract Deadline: December 14, 2022 / Discounted Registration Deadline: January 18, 2023

Charles Gersbach, Duke University, USA
Long-Term Evaluation of AAV-CRISPR Genome Editing and Immunogenicity in in vivo Models
Jennifer E. Adair†, Fred Hutchinson Cancer Research Center, USA
Nonviral Methods for Cell Engineering
Short Talks Chosen from Abstracts

Poster Session 2

WEDNESDAY, MARCH 22
Genome Editing and DNA Repair (Joint)
Maria Jasin, Memorial Sloan Kettering Cancer Center, USA
Genome Modification by Natural and Artificial DNA Breaks
Jennifer A. Doudna, HHMI/University of California, Berkeley, USA
The CRISPR Revolution: The Power and Promise of Gene Editing
Daniel Durocher, Lunenfeld-Tanenbaum Research Institute, Canada
A Genetic Map of the Response to DNA Damage in Human Cells (CRISPR/Cas9 Screens)
David Pellman, Dana-Farber Cancer Institute, USA
Chromothripsis
Short Talks Chosen from Abstracts

Panel Discussion: Addressing COVID-19-Related Challenges for Women in Science (X1)
Replication Coupled Repair (X1)
Helle D. Ulrich, Institute of Molecular Biology, Germany
New Insights into Ubiquitin-Dependent DNA Damage Bypass
Xiaolan Zhao, Memorial Sloan Kettering Cancer Center, USA
Integrative Analysis Reveals Unique Structural and Functional Features of the Smc5/6 Complex
Ralph Scully, Beth Israel Deaconess Medical Center, USA
Stalled Fork Repair in Health and Disease
Short Talks Chosen from Abstracts

Editing Technology Development (X2)
Nicole Gaudelli, Beam Therapeutics, USA
Adenine and Cytosine Base Editors for the Treatment of Disease
Alex Marson, University of California, San Francisco, USA
A Functional CRISPR Dissection of Gene Networks Controlling Human Regulatory T Cell Identity
Cecilia Cotta-Ramusino, Tessaera Therapeutics, USA
Gene Writing: A New Genome Engineering Technology
Short Talks Chosen from Abstracts

Poster Session 3

THURSDAY, MARCH 23
RNA Functions in Genome Stability (X1)

Marco F. Foiani, Instituto FIRC di Oncologia Molecolare, Italy
Role of ATR in Preservation of Cell Mechanics and Nuclear Integrity During Interstitial Migration
Karlene A. Cimprich, Stanford University, USA
RNA Meets DNA: Dangerous Liaisons in the Genome
Fabrizio d’Adda di Fagagna, IFOM, The FIRC Institute of Molecular Oncology, Italy
RNA Synthesis at DNA Lesions
Francesca Storici, Georgia Institute of Technology, USA
Role of RNAs as Templates for DSB Repair
Short Talks Chosen from Abstracts

Ex vivo Gene Edited Cell Therapies (X2)
Fyodor D. Urnov, University of California, Berkeley, USA
From N=1 to N=all: a Platform Approach to CRISPR-Cas Therapies for Disorders of Hematopoiesis
Natalia Gomez-Ospina, Stanford University, USA
Engineering the Blood to Treat the Brain Genome Editing
Chryystal Louis, CRISPR Therapeutics, USA
CTX001: Pivotal Studies for Sickle Cell Disease and beta Thalassemia
Matthew Porteus, Stanford University School of Medicine, USA
Sickle Cell Disease Clinical Program
Short Talks Chosen from Abstracts

Genomic Instability and Cancer 2 (X1)
André Nussenzweig, NCI, National Institutes of Health, USA
Talk Title to be Announced
Jan Karlseder, The Salk Institute for Biological Studies, USA
Autophagic Cell Death Restricts Chromosomal Instability During Replicative Crisis
Agnel Sfeir, Memorial Sloan Kettering Cancer Center, USA
Single-Molecule Imaging of Telomerase RNA Reveals a Recruitment-Retention Model for Telomere Elongation
Short Talks Chosen from Abstracts

In vivo Gene Editing Drug Development (X2)
Laura Sepp-Lorenzino, Intellia Therapeutics, USA
Clinical Results for In Vivo Knockout and Insertion CRISPR/Cas9 Programs
Mark S. Shearman, Editas Medicine, USA
Clinical Progress on in vivo Gene Editing for Inherited Retinal Disorders
Sekar Kathiresan, Verve Therapeutics, USA
Clinical Programs of Base Editors for Cardiovascular Disease
Short Talks Chosen from Abstracts

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X1)
Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X2)

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FRIDAY, MARCH 24

Departure