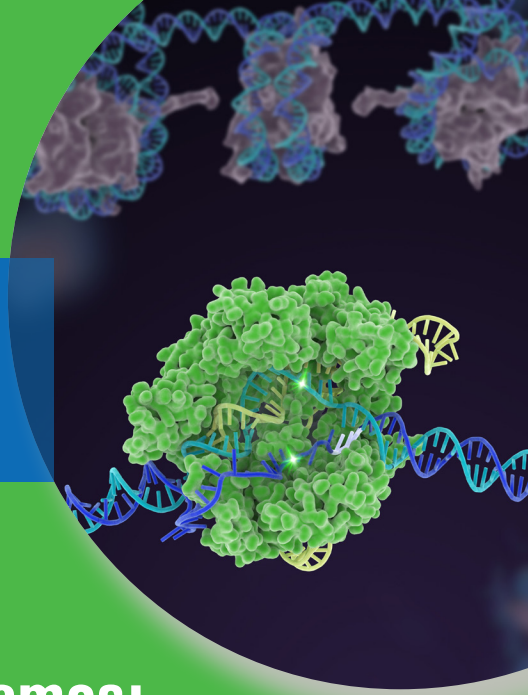
The California Institute for Quantitative Biosciences (QB3) is a three-campus partnership established in 2000 with the University of California campuses at Berkeley, San Francisco, and Santa Cruz and industry and venture partners. At Berkeley, QB3 stimulates discovery at the intersection of the physical and biological sciences by promoting multidisciplinary research in world-class facilities, creating innovative educational programs, and fostering industry partnerships. To learn more, visit **qb3.berkeley.edu**.

The Innovative Genomics Initiative (IGI) is dedicated to the advancement of genome editing research and technology, and its development and proliferation through new technologies and applications via business ventures and academic research communities. Established in 2014, the IGI conducts basic research in genetic engineering, applies CRISPR technology to applications in biomedicine and human health, provides education/training and fellowship opportunities, as well as business entrepreneurial opportunities to private/corporate investors and innovative technology companies. To receive an announcement about our upcoming transition and institute launch in Fall 2016, subscribe to our mailing list at **innovativegenomics.org**.

Program illustrations by Janet Iwasa



AUGUST
22
2016

4th ANNUAL

Re-writing Genomes: A New Era in Genome Engineering

A one-day symposium hosted by the California Institute for Quantitative Biosciences at Berkeley and the Innovative Genomics Initiative

245 Li Ka Shing Center for Biomedical and Health Sciences
University of California, Berkeley

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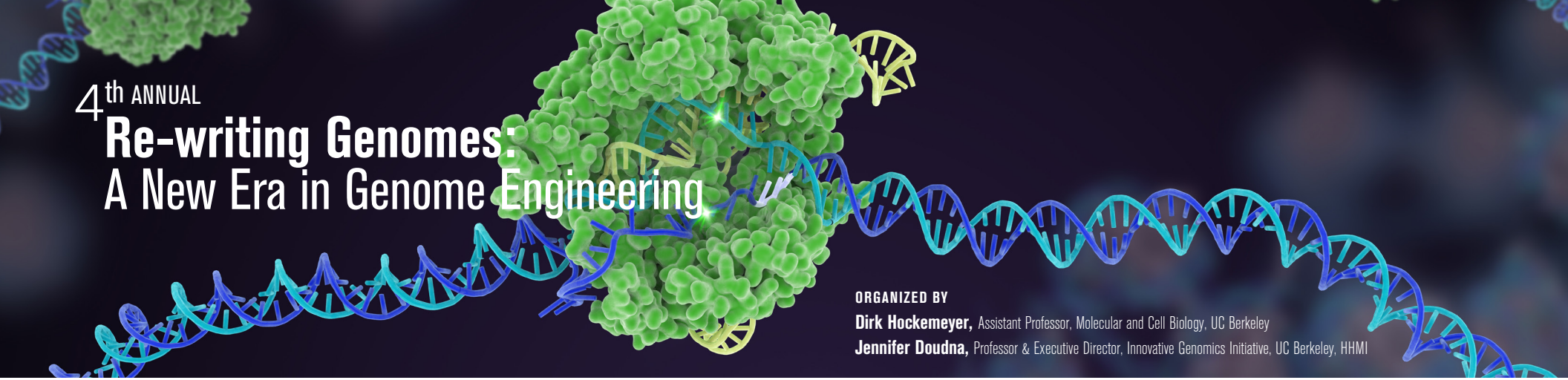

4th ANNUAL
Re-writing Genomes: A New Era in Genome Engineering

ORGANIZED BY

Dirk Hockemeyer, Assistant Professor, Molecular and Cell Biology, UC Berkeley

Jennifer Doudna, Professor & Executive Director, Innovative Genomics Initiative, UC Berkeley, HHMI

8:30–9:00 Welcome/Introductions

SESSION 1: MOLECULAR MECHANISMS OF EDITING

9:00–9:30 **Jennifer Doudna**, Session Chair, Professor & Executive Director, Innovative Genomics Initiative, UC Berkeley, HHMI, *CRISPR Systems: Nature's Toolbox for Genome Protection*

9:30–9:50 **Chris Richardson**, Postdoctoral Researcher, UC Berkeley, IGI, *Non-homologous DNA Increases Gene Disruption Efficiency by Altering DNA Repair Outcomes*

9:50–10:10 **Omar Abudayyeh**, Graduate Student, Harvard Medical School, MIT, *Finding Novel Genome Editing Tools in the CRISPR Diversity: From Cas9 to Cpf1 and Beyond*

10:10–10:30 **Ben Kleinstiver**, Instructor, Harvard Medical School, Massachusetts General Hospital, *Genome-wide Specificities of CRISPR-Cas Cpf1 Nucleases in Human Cells*

10:30–11:00 Break (refreshments & posters in the lobby)

SESSION 2: EMPOWERING BIOLOGICAL DISCOVERY

11:00–11:30 **Barbara Meyer**, Session Chair, Professor, UC Berkeley, HHMI, *Intimacy Makes the Sexes Equal*

11:30–11:50 **Christopher Vakoc**, Associate Professor, Cold Spring Harbor Laboratory, *Structure-Function Analysis of Endogenous Genes Using CRISPR-Scanning*

11:50–12:10 **Max Horlbeck**, Graduate Student, UCSF, HHMI, *Systematic Identification of Essential Long Non-coding RNA Genes in Human Cells*

12:10–12:30 **Charles Gersbach**, Associate Professor, Duke University, *Epigenome Editing with CRISPR/Cas9 Technologies*

12:30–2:00 Lunch Break (lunch provided onsite for registered guests)

SESSION 3: MODELING HUMAN DISEASE

2:00–2:30 **Tyler Jacks**, Session Chair, Professor & Director, Koch Institute for Integrative Cancer Research, MIT, HHMI, *Engineering the Cancer Genome*

2:30–2:50 **Helen Bateup**, Assistant Professor, UC Berkeley, *Modeling Neurodevelopmental Disorders Using Genetically Engineered Human Neurons*

2:50–3:10 **Frank Soldner**, Postdoctoral Associate, Whitehead Institute, *In Vitro Modeling of Complex Neurological Disease: Functional Analysis of Parkinson's Disease Associated Risk Variants*

3:10–3:40 Break (refreshments & posters in the lobby)

SESSION 4: TRANSLATIONAL APPROACHES

3:40–4:10 **Eric Olson**, Session Chair, Professor & Chair, Biochemistry and Molecular Biology, University of Texas Southwestern Medical Center, *Correction of Muscle Disease by Gene Editing*

4:10–4:30 **Daniel Voytas**, Professor & Director, Center for Genome Engineering, University of Minnesota, *Editing the Plant Genome*

4:30–4:50 **Scott Fahrenkrug**, Executive Chairman of the Board, Chief Scientific Officer, and Founder, Recombinetics, *Editing Food Animals for Milk, Meat and Medicine*

4:50–5:10 **Michael Holmes**, Vice President, Research, Sangamo BioSciences, *Genome Editing In Primary Human Cells and Organs: Towards the Goal of Engineering Genetic Cures*

5:10–5:30 Closing Remarks & Poster Prize