Keystone Symposia in Breckenridge

Single Cell Biology

Beaver Run Resort | Breckenridge, Colorado, USA | January 13–17, 2019

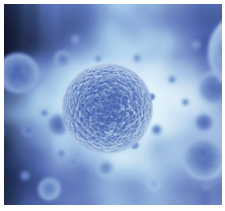
Scientific Organizers:
Timm Schroeder, ETH Zürich, Switzerland
Berthold Göttgens, Cambridge Institute for Medical Research, UK

Individual cells are the building blocks of all metazoan organisms, and the importance of analyzing biology at the single cell level has long been recognized. However, only recently have technological developments allowed quantitative single cell analyses on a broad scale, leading to an explosion of international single-cell research. This is an interdisciplinary field with fast-developing data acquisition modalities together with bespoke computational approaches, and now is a major driver of progress across many areas of biology, diagnostics and therapy. Dedicated conferences bringing together scientists with different technological, computational and bio-medical focus are therefore crucial to ensure mutual communication and to shape future developments. Current single cell meetings focus on high-throughput molecular snapshot measurements and their computational analysis. This conference will go beyond by emphasizing biological and biomedical applications of single cell approaches, including dynamic live cell measurements, to better understand the molecular control of cell fates and multicellular tissue generation in health and disease.

Plenary Session Topics:
- Single Cell Computational Biology
- Development at Single Cell Resolution
- From Single Cell Measurements to Molecular Mechanisms
- Imaging in 3D and *in vivo*
- New Technology for New Biology
- Extracting Information from High-Dimensional Measurements
- Reconstructing Cell Lineages
- Neuroscience at Single Cell Resolution

plus two workshops

Scholarship/Discounted Abstract Deadline: Sep 26, 2018; Abstract Deadline: Oct 18, 2018; Discounted Registration Deadline: Nov 15, 2018
Visit **www.keystonesymposia.org/19L1** for more details.


KEYSTONE SYMPOSIA™
on Molecular and Cellular Biology
Accelerating Life Science Discovery
a 501(c)(3) nonprofit educational organization

KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Single Cell Biology (L1)

January 13-17, 2019 • Beaver Run Resort • Breckenridge, Colorado, USA

Scientific Organizers: Timm Schroeder and Berthold Göttgens

Sponsored by BioLegend, Inc. and Cell Research

Abstract & Scholarship Deadline: September 26, 2018 / Abstract Deadline: October 18, 2018 / Discounted Registration Deadline: November 15, 2018

SUNDAY, JANUARY 13

Arrival and Registration

MONDAY, JANUARY 14

Welcome and Keynote Address

Scott E. Fraser, University of Southern California, USA
Multimodal Single Cell Imaging

Single Cell Computational Biology

Fabian Theis, Helmholtz Zentrum München, Germany
Modeling Cell Fate Choice Control from Single Cell Data

Rahul Satija, New York Genome Center, USA
Integrated Analysis of Single Cell Data across Modalities, Technologies, and Species

Dana Pe'er, Memorial Sloan Kettering Cancer Center, USA
Computational Tools to Advance Single Cell Biology

Short Talk(s) Chosen from Abstracts

Workshop 1

Short Talks Chosen from Abstracts

Development at Single Cell Resolution

Berthold Göttgens, Cambridge Institute for Medical Research, UK
Mapping Development a Single Cell Resolution

Amos Tanay, Weizmann Institute, Israel
Single Cell Epigenetics and Transcriptional Control of Cellular States

Allon Klein, Harvard University, USA
Cell Fate Diversification Analyzed at Single Cell Resolution

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, JANUARY 15

From Single Cell Measurements to Molecular Mechanisms

Lucas Pelkmans, University of Zürich, Switzerland
Principles of Self-Organization of Individual Cells

Ellen V. Rothenberg, California Institute of Technology, USA
Molecular Mechanisms Controlling Lymphoid Cell Fates

Caroline Uhler, Massachusetts Institute of Technology, USA
From Single Cell Measurements to Computational Models of Gene Networks and 3D DNA Organization

Timm Schroeder, ETH Zürich, Switzerland
Analyzing Cell Fate Control Dynamics by Long-Term Single-Cell Quantification

Short Talk(s) Chosen from Abstracts

Imaging in 3D and In Vivo

Cristina Lo Celso, Imperial College London, UK
Healthy and Malignant Haematopoiesis in the Bone Marrow: Dynamic Cells in a Plastic Environment

Prisca Liberali, Friedrich Miescher Institute for Biomedical Research, Switzerland
Self-Organisation and Symmetry Breaking in Intestinal Organoids

Shosei Yoshida, National Institute for Basic Biology, Japan
Long-Term in vivo Single Cell Imaging of Spermatogenesis

Short Talk Chosen from Abstracts

Poster Session 2

WEDNESDAY, JANUARY 16

New Technology for New Biology

Stephen Quake, Stanford University, USA
Fluidics Devices for Single Cell Quantification and Manipulation

Bart Deplancke, Swiss Federal Institute of Technology Lausanne, Switzerland
Predicting Complex Phenotypes from Single Cell Data

Georg Seelig, University of Washington, USA
Single-Cell Profiling of the Developing Mouse Brain and Spinal Cord with Split-Pool Barcoding

Alex K. Shalek, Massachusetts Institute of Technology, USA
New Technologies for Complex Single Cell Profiling

Short Talk(s) Chosen from Abstracts

Workshop 2

Short Talks Chosen from Abstracts

Extracting Information from Highdimensional Measurements

Garry P. Nolan, Stanford University, USA
High-Dimensional Single Cell Quantification

Xiaowei Zhuang, Harvard University, USA
Single Cell High-Dimensional Transcriptome and Genome Imaging

Remco Loos, Celgene Institute for Translational Research Europe, Spain
Predicting Treatment Response in Leukemia at Single-Cell Level

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, JANUARY 17

Reconstructing Cell Lineages

Thomas Hofer, Deutsches Krebsforschungszentrum, Germany
Modeling Population Dynamics of Lineage Pathways through Barcoding Analysis

Barbara Wold, California Institute of Technology, USA
Following Cellular Reprogramming at the Single Cell Level

Wolf Reik, Babraham Institute, UK
Defining Cell States by Single Cell Multi-Omics

Fernando D. Camargo, Boston Children's Hospital, USA
Cellular Barcoding in Mammalian Systems

Short Talk(s) Chosen from Abstracts

Neuroscience at Single Cell Resolution

Hongkui Zeng, Allen Institute for Brain Science, USA
Robotic Single Cell Brain Analysis

Rick Horwitz, Allen Institute for Cell Science, USA
Conjoining Single Cell Imaging, Genomics, and Computation to Create a Stem Cell State Space

Barbara Treutlein, Max Planck Institute for Evolutionary Anthropology, Germany
Reconstructing Differentiation Pathways in Organs and Organoids

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

FRIDAY, JANUARY 18

Departure