

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Cryo-EM from Cells to Molecules: Multi-Scale Visualization of Biological Systems (F1)

February 4-8, 2018 • Granlibakken Tahoe • Tahoe City, California, USA

Scientific Organizers: Georgios Skiniotis, Elizabeth Villa and Andrew B. Ward

Supported by the Directors' Fund

Abstract & Scholarship Deadline: October 5, 2017 / Abstract Deadline: November 7, 2017 / Discounted Registration Deadline: December 7, 2017

### SUNDAY, FEBRUARY 4

#### Arrival and Registration

### MONDAY, FEBRUARY 5

#### Welcome and Keynote Address

**Patrick Cramer**, Max Planck Institute for Biophysical Chemistry, Germany  
*Insights into Gene Transcription: An Integrated Structural Biology Approach*

#### Visualizing Cells

**Elizabeth Villa**, University of California, San Diego, USA  
*Opening Windows into the Cell: Bringing Structure to Cell Biology using Cryo-Electron Tomography*

**Grant J. Jensen**, California Institute of Technology, USA  
*Structural Biology in vivo: Correlating Cryo-ET to Fluorescence Microscopy*

**Mark H. Ellisman**, University of California San Diego, USA  
*The Big Picture of Small Things*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 1: Equipment, Setting up a Lab, Availability of Remote Data Collection, Etc.

#### Short Talks Chosen from Abstracts

#### Visualizing Subcellular Compartments

**Daniela Nicastro**, University of Texas Southwestern Medical Center, USA  
*Cryo-Electron Tomography Sheds Light into Ciliary Structure and Function*

**Jun Liu**, University of Texas Medical School at Houston, USA  
*High-Throughput Cryo-Electron Tomography: Visualizing Molecular Machines in Cells*

**Kay Grunewald**, University of Oxford, UK  
*Trafficking Vesicles and Enveloped Viruses*

#### Short Talk Chosen from Abstracts

#### Poster Session 1

### TUESDAY, FEBRUARY 6

#### Cryo-EM of Large Macromolecular Assemblies

**Kiyoshi Nagai**, Medical Research Council, UK  
*Structure of the Spliceosome: Towards Understanding Catalytic Mechanism*

**Adam Frost**, University of California, San Francisco, USA  
*Function Follows Form: Cryo-EM Insights into Cell Biology*

**Eva Nogales**, University of California, Berkeley, USA  
*Understanding Macromolecular Complex Assembly, Interactions and Dynamics through Cryo-EM*

#### Speaker to be Announced

#### Short Talk(s) Chosen from Abstracts

#### Workshop 2: Specimen Preparation

#### Short Talks Chosen from Abstracts

#### Cryo-EM of Small Single Particles

**Dmitry Lyumkis**, The Salk Institute for Biological Studies, USA  
*High-Resolution Cryo-EM Studies of Retroviral Intasomes*

#### Speaker to be Announced

**Maofu Liao**, Harvard Medical School, USA  
*Single Particle Cryo-EM Studies of Lipid-Protein Interactions*

#### Short Talk Chosen from Abstracts

#### Poster Session 2

### WEDNESDAY, FEBRUARY 7

#### Translational Cryo-EM

#### Speaker to be Announced

*Applications of Cryo-EM in Pharmaceutical Industry*

**Seungil Han**, Pfizer Inc., USA

*Talk Title to be Announced*

**Andrew B. Ward**, The Scripps Research Institute, USA  
*Structure-Based Vaccine Design*

#### Speaker to be Announced

#### Short Talk(s) Chosen from Abstracts

#### Technological Advances in Cryo-EM

**Radostin Danev**, Max Planck Institute of Biochemistry, Germany  
*Single Particle Imaging with the Volta Phase Plate*

**Bridget Carragher**, New York Structural Biology Center, USA  
*New Approaches to Cryo-EM Specimen Preparation*

#### Speaker to be Announced

#### Short Talk Chosen from Abstracts

#### Poster Session 3

### THURSDAY, FEBRUARY 8

#### Cryo-EM of Membrane Proteins

**Georgios Skiniotis**, University of Michigan, USA

*Breaking into GPCR Structure and Dynamics through Cryo-EM*

**Judy Hirst**, MRC Mitochondrial Biology Unit, UK

*CryoEM Structures of Mitochondrial Complex I*

**Eric Gouaux**, Oregon Health & Science University, USA

*Talk Title to be Announced*

**Doreen Matthies**, National Institutes of Health, USA

*Single-Particle Cryo-EM Studies of a Magnesium Ion Channel*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 3: Hybrid Methods and Combining Data, Refining Structures of Macromolecular Complexes

#### Short Talks Chosen from Abstracts

#### Frontiers in Cryo-EM

**Andrej Sali**, University of California, San Francisco, USA

*Integrative Modeling of Biomolecular Assemblies and Pathways*

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**David Baker**, University of Washington, USA

*Tailoring Scaffolds for Structure Determination of Small Proteins by Cryo-EM*

### Closing Keynote Address

**Joachim Frank**, Columbia University, USA

*Story in a Sample: Multiple Ribosome Structures in a Single Cryo-EM Experiment*

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

### FRIDAY, FEBRUARY 9

### Departure