

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Biomolecular Condensates: Phase Separated Organizers of Cellular Biochemistry (D5)

April 10-13, 2019 • Snowbird Resort • Snowbird, Utah, USA

Scientific Organizers: Michael K. Rosen and Anthony Hyman

Supported by the Directors' Fund

Abstract & Scholarship Deadline: December 13, 2018 / Abstract Deadline: January 10, 2019 / Discounted Registration Deadline: February 12, 2019

### WEDNESDAY, APRIL 10

#### Arrival and Registration

### THURSDAY, APRIL 11

#### Welcome and Keynote Address

**Clifford P. Brangwynne**, Princeton University, USA  
*Moving through Intracellular Phase Space*

#### Physical Mechanisms of Macromolecular Phase Separation and Regulation

**Frank Jülicher**, Max-Planck-Institute for the Physics of Complex Systems, Germany

*The Physical Chemistry of Macromolecular Phase Separation*

**Julie D. Forman-Kay**<sup>†</sup>, Hospital for Sick Children, Canada  
*Physical Mechanisms of Phase Separation of Disordered Proteins*

**Rohit V. Pappu**, Washington University in St. Louis, USA  
*Physical Principles of Macromolecular Phase Separation*

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

#### Structure and Substructure of Biomolecular Condensates

**Julia Mahamid**, European Molecular Biology Laboratory, Germany  
*Cryo-electron Tomographic Studies of RNA Granules*

**Abby F. Dernburg**, University of California, Berkeley, USA  
*Mechanochemical Signaling within a Liquid Crystalline Compartment Enables Chromosome-Wide Regulation*

**Robert Tycko**, NIDDK, National Institutes of Health, USA  
*Structure of Low-Complexity Protein Assemblies*

#### Short Talk Chosen from Abstracts

#### Poster Session 1

### FRIDAY, APRIL 12

#### Biochemical and Biological Function of Biomolecular Condensates

**D. Allan Drummond**, University of Chicago, USA  
*Phase Separation as an Adaptive Response to Cell Stress*

**Anthony Hyman**, Max Planck Institute of Molecular Cell Biology & Genetics, Germany

*ATP as a Biological Hydrotrope*

#### Speaker to be Announced

**Geraldine Seydoux**, Johns Hopkins School of Medicine, USA  
*RNA Granules in the *C. elegans* Embryo*

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

#### New Phase Separating Systems

**Richard A. Young**, Whitehead Institute for Biomedical Research, USA  
*Transcriptional Condensates and Cell Identity*

**Pietro V. De Camilli**, Yale University School of Medicine, USA  
*Liquid Phase Separation of Synaptic Vesicles*

**Arnaud Hubstenberger**, Institute of Biology Valrose, France  
*RNP Phase Transitions During Development*

#### Short Talk Chosen from Abstracts

#### Poster Session 2

### SATURDAY, APRIL 13

#### Specificity

**Michael K. Rosen**, University of Texas Southwestern Medical Center, USA

*Compositional Control of Phase Separated Droplets*

#### Speaker to be Announced

**Amy Gladfelter**, University of North Carolina at Chapel Hill, USA  
*How RNA Structure Controls Specificity in Intracellular Phase Separation*

**Ibrahim Cissé**, Massachusetts Institute of Technology, USA  
*Single Molecule Studies of Intracellular Phase Separation*

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

#### Biomolecular Condensates in Disease

#### Speaker to be Announced

**Simon Alberti**, Max Planck Institute of Molecular Cell Biology and Genetics, Germany

*Aberrant Phase Transitions and Age-Related Disease*

**J. Paul Taylor**, St. Jude Children's Research Hospital, USA  
*Aberrant Phase Separation of RNA Binding Proteins in Neurodegeneration*

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

### SUNDAY, APRIL 14

#### Departure