

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Frontiers in Cryo-Electron Microscopy (EK19)

February 3-4, 2021 • Virtual at your computer

Scientific Organizers: Sriram Subramaniam, Nenad Ban, Dorit Hanein and Pamela Williams

Sponsored by Genentech, Inc., Merck & Co., Inc. and Vertex Pharmaceuticals Incorporated

WEDNESDAY, FEBRUARY 3

Welcoming Remarks (Organizers) (8am Denver/Mountain Time Start)

Sriram Subramaniam, University of British Columbia, Canada

Nenad Ban, ETH Zürich, Switzerland

Large and Dynamic Assemblies (8:10am Denver/Mountain Time Start)

***Nenad Ban**, ETH Zürich, Switzerland

[NOT AVAILABLE ON DEMAND] *Structural Basis of SARS-CoV-2 Translational Shutdown and Programmed Ribosomal Frameshifting*

John Rubinstein, University of Toronto, Canada

ATPase Structure and Dynamics

Sriram Subramaniam, University of British Columbia, Canada

Cryo-EM in Cancer Biology

Natalie Strynadka, University of British Columbia, Canada

CryoEM Analysis of the Dual Membrane Spanning Type III Secretion Injectisome of Pathogenic Bacteria

Steven J. Ludtke, Baylor College of Medicine, USA

A Complete Software Pipeline for in-situ Subnanometer Resolution Subtomogram Averaging

Xinzhe Yu, Baylor College of Medicine, USA

Short Talk: Structural Insights of Transcriptionally Active, Full-Length Androgen Receptor Coactivator Complexes

***Carsten Sachse**, Forschungszentrum Jülich, Germany

Short Talk: Cryo-EM Reveals Structures of ESCRT-III Membrane Remodeling Proteins in Eukarya and Bacteria

Meet the Editors (12:00pm Denver/Mountain Time Start)

Achim Breiling, EMBO, Germany

Shawna Buttery, STAR Protocols - Cell Press, USA

Mishtu Dey, Cell Press, USA

Poster Session (1pm Denver/Mountain Time Start)

Methods Development and Correlative Microscopy (3pm Denver/Mountain Time Start)

Peijun Zhang, University of Oxford, UK

In situ Structure Study of Virus Infection

Jose Rodriguez, University of California, Los Angeles, USA

New Frontiers in Electron Diffraction

Bridget Carragher, New York Structural Biology Center, USA

Atomic Resolution CryoEM Is Here! Why Won't Our Protein Samples Cooperate?

Paul D. Adams, Lawrence Berkeley Laboratory, USA

New Tools for the Interpretation of Cryo-EM Maps

***Dorit Hanein**, Pasteur Institute, France

Regulation of Actin Cytoskeleton

Greg Pintilie, Stanford University, USA

Short Talk: Quantifying Resolvability of Atomic Features in Cryo-EM Maps using Q-Scores

***Petr Chlanda**, Heidelberg University, Germany

Short Talk: Dual-axis Volta Phase Plate Cryo-Electron Tomography of Ebola Virus-Like Particles

THURSDAY, FEBRUARY 4

Keynote Address (8am Denver/Mountain Time Start)

***Sriram Subramaniam**, University of British Columbia, Canada

Session Chair

Werner Kühlbrandt, Max-Planck-Institute of Biophysics, Germany

CryoEM of Membrane Protein Complexes in Biological Energy Conversion

Cellular Ultrastructure and Microbial Complexes (8:30am Denver/Mountain Time Start)

Daniela Nicastro, University of Texas Southwestern Medical Center, USA

Probing the Molecular Organization of Cells and Organelles Using Cryo-Electron Microscopy

Ohad Medalia, University of Zurich, Switzerland

Nuclear Lamin Filaments in Health and Disease

Martin Pilhofer, ETH Zurich, Switzerland

[NOT AVAILABLE ON DEMAND] *Multiscale Models of Bacterial Contractile Injection Systems*

***Jun Liu**, Yale School of Medicine, USA

Dissecting a Molecular Machine by Cryo-Electron Tomography

***Elizabeth R. Wright**, University of Wisconsin-Madison, USA

Host-Pathogen Interactions

Career Roundtable (12:30pm Denver/Mountain Time Start)

Bridget Carragher, New York Structural Biology Center, USA

Jose Rodriguez, University of California, Los Angeles, USA

Giovanna Scapin, Nanolmaging Services, USA

Bringing CryoEM to Industry – Lessons Learned

Networking Lounge (1:30pm Denver/Mountain Time Start)

Drug Discovery (3pm Denver/Mountain Time Start)

***Pamela Williams**, Astex Pharmaceuticals, UK

[NOT AVAILABLE ON DEMAND] *Cryo-EM Applications in Industry*

Giovanna Scapin, Nanolmaging Services, USA

Bringing Cryo-EM to Drug Discovery: Lessons Learned

Patrick M. Sexton, Monash University, Australia

From Apo to Active to Small Molecule Drug Discovery: GPCR Structure using Cryo-EM

Chuangye Yan, Tsinghua University, China

Structural Basis for the Transport and Inhibition of Human Monocarboxylate Transporters

Georg Wolff, Leiden University Medical Center, Netherlands

Short Talk: Discovering RNA Export Pores in Coronavirus Replication Organelles

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***Cathy Spangler**, University of North Carolina at Chapel Hill, USA

Short Talk: Cryo-EM Structure of cGAS-Nucleosome Complex Reveals Mechanism of Nucleosome-Dependent cGAS Inhibition

Joseph D. Batchelor, Sanofi, USA

[NOT AVAILABLE ON DEMAND] Short Talk: Molecular Determinants of the Factor VIII/von Willebrand Factor Complex Revealed by BIVV001 Cryo-Electron Microscopy

Closing Remarks (5:50pm Denver/Mountain Time Start)

Sriram Subramaniam, University of British Columbia, Canada