

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Proteomics in Cell Biology and Disease (EK2)

September 21-23, 2020 • Virtual at your computer • , CO, USA

Scientific Organizers: Jennie R. Lill, Forest M. White and Kathryn S. Lilley

Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

Global Health Travel Award Deadline: August 24, 2020 / Scholarship Deadline: August 24, 2020 / Abstract Deadline: September 3, 2020 / Discounted Registration Deadline:

MONDAY, SEPTEMBER 21

Welcoming Remarks (8am Denver/Mountain Time Start)

Keynote Address (8:10am Denver/Mountain Time Start)

***Jennie R. Lill**, Genentech, Inc., USA

Alice Y. Ting, Stanford University, USA
Proximity Labeling for Mapping Spatial Proteomes and Transcriptomes in Living Cells

Studying the Cell Surfaceome (8:40am Denver/Mountain Time Start)

***Nadia Martinez-Martin**, Genentech, Inc., USA
Mapping the Human Immunoglobulin Superfamily Receptome to Identify Novel Cancer-Relevant Pathways

Bernd Wollscheid, ETH Zürich, Switzerland
Light-Mediated Discovery of Surfaceome Nanoscale Organization and Inter-Cellular Receptor Interaction Networks

***Gavin J. Wright**, Wellcome Trust Sanger Institute, UK
Large-Scale Systematic Approaches to Identify Novel Receptor-Ligand Pairs that Initiate Intercellular Signaling

Sofia Massaro Tiede, Yale University, USA
Short Talk: Identification of Palmitoyl Protein Thioesterase Substrates Defines Roles for Synaptic Depalmitoylation

Monika Vishnoi, Houston Methodist Research Institute, USA
Short Talk: Matrisome Signatures in GBM Heterogeneity

Lightning Talks (10:35am Denver/Mountain Time Start)

***Kathryn S. Lilley**, University of Cambridge, UK

Emma Borgeson, University of Gothenburg, Sweden
Advanced Multiplex Protein Analysis of Obesity-Related Cardiometabolic Biomarkers in Human Plasma and Serum

Dustin T. King, Simon Fraser University, Canada
Ultraviolet Photodissociation Mass Spectrometry Enables Precise Mapping of O-GlcNAc Sites in Proteins

Josie Amber Christopher, University of Cambridge, UK
Spatial Dynamics of the DNA Damage Proteome

Daniel Hornburg, Seer, USA
Proteograph™, a Multi-Nanoparticle Platform, Enables Plasma Proteomics Profiling at Scale and Speed, Significantly Improving Coverage and Scalability versus Traditional Deep fractionation methods

Justin McKetney, University of Wisconsin-Madison, USA
Proteomic Analysis of Cerebrospinal Fluid in Alzheimer's Disease

Nicolas Hartel, University of Southern California, USA
Deep Protein Arginine Methylation Profiling by LC-MS Proteomics

Samuel B. Pollock, Genentech, Inc., USA
Semi-Automated MHC-I Enrichment and TOMAHAQ Mass Spectrometry for the Sensitive and Quantitative Detection of Neopeptides

Poster Session (12pm Denver/Mountain Time Start)

Dissection of Complex Data Sets: Informatic and Statistical Tools of the Trade (2pm Denver/Mountain Time Start)

Jyoti Choudhary, Institute of Cancer Research, UK
Integrative Proteogenomics Deconvoluting the Landscape of Lung Adenocarcinoma in Never-Smokers

***Lennart Martens**, Ghent University, Belgium
Machine Learning Powered Next-Generation Proteomics

***Olga Vitek**, Northeastern University, USA
Challenges in Large-Scale Computational Mass Spectrometry and Multiomics

Mikhail Savitski, European Molecular Biology Laboratory, Germany
Phenotyping Cellular States with Functional Proteomics

Kevin Drew, University of Texas at Austin, USA
Short Talk: Hu.MAP2.0: Integration of over 15,000 Proteomic Experiments Builds a Global Compendium of Human Multiprotein Assemblies

Nader Morshed, Massachusetts Institute of Technology, USA
Short Talk: Quantitative Phosphoproteomics Uncovers Dysregulated Kinase Networks in Alzheimer's Disease

Devin K. Schweppe, University of Washington, USA
Short Talk: Millisecond Informatics: Real-Time Analytics for Quantitative Proteomics

Nicholas M. Riley, Stanford University, USA
Short Talk: Designing Methods and Software to Suit the needs of O-glycopeptide Characterization

TUESDAY, SEPTEMBER 22

Working Towards Single Cell Proteomics (8am Denver/Mountain Time Start)

***Jennie R. Lill**, Genentech, Inc., USA

***Matthew S. Bogoyo**, Stanford University School of Medicine, USA
Chemical Proteomic Tools for Identification and Imaging of Enzymes Involved in Cancer and Infectious Disease

Edward M. Marcotte, University of Texas at Austin, USA
Single Molecule Protein Sequencing

Ryan Kelly, Brigham Young University, USA
One Cell at a Time: Nanodroplet Sample Preparation Enables In-Depth Single Cell Proteomics

Joseph Gogain, SomaLogic, Inc, USA
Discovery and Validation of a Blood-Based Protein Signatures for Assessing Human Health

Laura Muehlbauer, University of Wisconsin-Madison, USA
Short Talk: Global Phosphoproteome Analysis using FAIMS on a Hybrid Orbitrap Mass Spectrometer

Mahmoud-reza Rafiee, Francis Crick Institute, UK
Short Talk: SPACE Exploration of RNA-Binding Proteins Reveals Diminished Chromatin-Binding of Mutant VCP in a Human Stem Cell Model of Neurodegeneration

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Poster Session (12pm Denver/Mountain Time Start)

Integrative Multidimensional Omics (2pm Denver/Mountain Time Start)

***Nathalie Agar**, Brigham and Womens Hospital, USA
Mass Spectrometry Imaging Methodologies, to Study Neuro-Oncology in Brain Cancer

Jonathan S. Weissman, Whitehead Institute and MIT, USA
Multidimensional Omics - Harnessing Ribosomal Profiling and Proteomics to Investigate Non Canonical Translation Events in Disease

Claudia Andrea Escher, Biognosys AG, Switzerland
Proteomics for Precision Medicine: A High-Throughput Platform for Proteome and Phospho-Proteome

Aditya Murthy, Genentech, Inc., USA
Short Talk: Multiplexed Proteomics in Macrophages Uncovers Novel Roles of Autophagy in Anti-Microbial Immunity

Roberta Migale, Francis Crick Institute, UK
Short Talk: Dynamics of FOXL2 Gene Regulation in the Mouse Ovary

Liang Zhang, City University of Hong Kong, Hong Kong
Short Talk: Dissect RNA-Protein Interactome in Living Cells Using CRISPR-Assisted Proximity Labeling

Carlos Cruchaga, Washington University School of Medicine, USA
Short Talk: Genomic and Multi-Tissue Proteomic Integration for Understanding the Biology of Disease and other Complex Traits

***Christine Vogel**, New York University, USA
Short Talk: Integrative Systems Profiling Identifies New Signatures of Neurodegeneration – and Novel Roles of the Core Proteasome

Anne-Claude Gingras, Lunenfeld-Tanenbaum Research Institute, Canada

Marcus Bantscheff, GlaxoSmithKline, Germany

Nathalie Agar, Brigham and Womens Hospital, USA

Elucidation of in vivo Signaling Networks (2pm Denver/Mountain Time Start)

***Forest M. White**, Massachusetts Institute of Technology, USA
Phosphoproteomics for Characterization of Therapeutic Resistance Pathways

Jennie R. Lill, Genentech, Inc., USA
Hippo Pathway Deregulation in Cancer

David E. James, University of Sydney, Australia
Personalised Phosphoproteomics – Studying the Exercise Response in Individuals

***Marcus Bantscheff**, GlaxoSmithKline, Germany
Chemoproteomics for the Elucidation of Signaling Networks

Xiaoyu Zhang, The Scripps Research Institute, USA
Short Talk: Electrophilic PROTACs that Degrade Nuclear Proteins by Engaging DCAF16

Nida Haider, Joslin Diabetes Center/ Harvard Medical School, USA
Short Talk: Distinct Male and Female Phosphoproteomic Signatures Underlie Human Insulin Resistance

Brendan Floyd, University of Texas at Austin, USA
Short Talk: Systematic Identification of Protein Phosphorylation-Mediated Interactions

Closing Remarks (4:45pm Denver/Mountain Time Start)

WEDNESDAY, SEPTEMBER 23

Spatial Proteomics (8am Denver/Mountain Time Start)

***Kathryn S. Lilley**, University of Cambridge, UK
Spatial Organization of the Transcriptome and Proteome

Anne-Claude Gingras, Lunenfeld-Tanenbaum Research Institute, Canada
Tracking Spatiotemporal Proteomics in Complex Systems using Proximity Tagging

***Matthias Trost**, Newcastle University, UK
Proteome Analysis Identifies Novel Roles for Ubiquitylation in the Innate Immune Response from the Phagosome

Cecilia Lindskog, Uppsala University, Sweden
The Human Protein Atlas – Integrated Omics for Single Cell Analysis

Xinying Zong, St. Jude Children's Research Hospital, USA
Short Talk: Dynamic cis-Proteomics Comprehensively Reveals Signal-Dependent Regulators

Ashley Frankenfield, George Washington University, USA
Short Talk: A Specific and Sensitive Proximity-labeling Proteomics Approach for Studying Protein-Protein Interactions of the Lysosome Membrane

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