



FASEB

Federation of American Societies
for Experimental Biology

SRC: Science Research Conferences

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Molecular Biophysics of Membranes

July 10-15, 2016

Snowmass, Colorado

Organizers:

Lukas K. Tamm

University of Virginia, Charlottesville, VA

Lynmarie K. Thompson

University of Massachusetts, Amherst, MA

Sunday, July 10, 2016

4:00 p.m. – 9:00 p.m.	Conference Registration (Base Village Conference Center)
6:00 p.m. – 7:00 p.m.	Welcome Reception (Base Camp Grill)
7:00 p.m. – 8:00 p.m.	DINNER (Base Camp Grill)
8:00 p.m. – 9:15 p.m.	Conference Opening and Opening Keynote (Base Village Conference Center) W.E. Moerner, Stanford University (Nobel Laureate) The promise and challenges of 3D super-resolution microscopy and single-molecule tracking in cells
9:15 – 10:00 p.m.	Poster Previews

Monday, July 11, 2016

Time	Title/Topic Event
7:30 a.m. – 9:00 a.m.	BREAKFAST (Base Camp Grill)
7:30 a.m. – 12:00 p.m., 4:00 p.m. – 6:00 p.m.	Conference Registration (Base Village Conference Center)
9:00 a.m. – 12:00 p.m.	General Session (Chair: Jochen Zimmer) Protein and Carbohydrate Synthesis in the Membrane
9:00 a.m. – 9:35 a.m.	Jochen Zimmer, University of Virginia (session chair) Mechanism of cellulose synthesis and membrane translocation
9:35 a.m. – 10:10 a.m.	Gunnar von Heijne, University of Stockholm, Sweden Cotranslation protein folding inside and outside membranes
10:10 a.m. – 10:35 a.m.	FASEB Sponsored Morning Coffee Break and Group Photo
10:35 a.m. – 10:50 a.m.	Short talk: James C. Gumbart, Georgia Institute of Technology (Poster #4) Simulations of BamA in a native outer-membrane model and energetics of lateral opening
10:50 a.m. – 11:25 a.m.	Nicholas Noinaj, Purdue University

11:25 a.m. – 12:00 p.m.	Structural insights into the biogenesis of beta-barrel membrane proteins Toshiya Endo, Kyoto Sangyo University, Japan Machineries for mitochondrial protein and lipid transport
12:00 p.m. – 1:00 p.m.	LUNCH and Meet the Experts (Base Camp Grill)
2:00 p.m. – 4:00 p.m.	Poster Session 1
4:00 p.m. – 6:00 p.m.	Special Short Talk Session (Co-Chairs: Jens Meiler & Joanna Slusky) Membrane Protein Structure and Oligomerization
4:00 p.m. – 4:15 p.m.	Short Talk: Jens Meiler, Vanderbilt University (Poster #5) Membrane protein structure prediction integrating limited experimental data
4:15 p.m. – 4:30 p.m.	Short Talk: Samantha Anderson, University of Wisconsin-Madison (Poster #7) Optimization of Ca—H hydrogen bonding and van der Waals interactions drives GxxxG-mediated association in a biological membrane
4:30 p.m. – 4:45 p.m.	Short Talk: Joanna Slusky, University of Kansas (Poster #9) Design of an oligomerization inhibitor for the outer membrane
4:45 p.m. – 5:15 p.m.	Break
5:15 p.m. – 5:30 p.m.	Short Talk: Alejandro P. Heuck, University of Massachusetts (Poster #11) Assembly of the <i>Pseudomonas aeruginosa</i> Type III secretion translocators in membrane bilayers
5:30 p.m. – 5:45 p.m.	Short Talk: Zi-Jian Xiong, University of Toronto (Poster #13) Structure of human acid sphingomyelinase reveals the role of the saposin domain in activating substrate hydrolysis
5:45 p.m. – 6:00 p.m.	Short Talk: Yan Wang, University of Illinois at Urbana-Champaign (Poster 14) Structural basis of phosphatidylserine recognition by blood coagulation factors
6:00 p.m. – 7:00 p.m.	DINNER (Base Camp Grill)
7:00 p.m. – 10:00 p.m.	General Session (Chair: Charles Sanders) Membrane Protein Folding and Design
7:00 p.m. – 7:35 p.m.	Charles Sanders, Vanderbilt University Misfolding of membrane proteins as contributor to human disease
7:35 p.m. – 8:10 p.m.	Karen Fleming, Johns Hopkins University The versatile beta-barrel gives up secrets of the membrane
8:10 p.m. – 8:25 p.m.	Short Talk: Min Chen, University of Massachusetts (Poster #12) The gating dynamics of outer membrane porin G loops and its application in bionanotechnology
8:25 p.m. – 8:35 p.m.	Break
8:35 p.m. – 8:50 p.m.	Short Talk: Nicholas Last, Brandeis University (Poster #16) Fluc: a dual-topology double-barreled fluoride channel
8:50 p.m. – 9:25 p.m.	Heedeok Hong, Michigan State University Steric trapping reveals a cooperativity network in the intramembrane protease GlpG
9:25 p.m. – 10:00 p.m.	William DeGrado, UC San Francisco Analysis and design of proton transporters

Tuesday, July 12, 2016

Time	Title/Topic Event
7:30 a.m. – 9:00 a.m.	BREAKFAST (Base Camp Grill)
7:30 a.m. – 12:00 p.m., 4:00 p.m. – 6:00 p.m.	Conference Registration (Base Village Conference Center)
9:00 a.m. – 12:00 p.m.	General Session (Chair: Olga Boudker) Transporters and Channels
9:00 a.m. – 9:35 a.m.	Olga Boudker, Weill Medical College of Cornell University Linking structure and dynamics to function in a glutamate transporter homologue
9:35 a.m. – 10:10 a.m.	Robert Tampé, University of Frankfurt, Germany Antigens on the move: twists and turns of ABC transporters
10:10 a.m. – 10:35 a.m.	FASEB Sponsored Morning Coffee Break
10:35 a.m. - 10:50 a.m.	Short Talk: Mark Yeager, University of Virginia (Poster #18) An electrostatic mechanism for Ca ²⁺ -mediated regulation of gap junction channels
10:50 a.m. – 11:25 a.m.	Hassane Mchaourab, Vanderbilt University Structural dynamics of ABC transporters
11:25 a.m. – 12:00 p.m.	Merritt Maduke, Stanford University Conformational change in CLC transporters: beyond the rotation of Gluex
12:00 p.m. – 1:00 p.m.	LUNCH (Base Camp Grill)
1:00 p.m. – 4:00 p.m.	Free time/Hiking/Biking/Horseback riding/Visit Aspen etc.
4:00 p.m. – 6:00 p.m.	Poster Session 2
6:00 p.m. – 7:00 p.m.	Conference Registration
6:00 p.m. – 7:00 p.m.	DINNER (Base Camp Grill)
7:00 p.m. – 10:00 p.m.	General Session (Chair: Andreas Herrmann) Virus Entry and Endocytosis
7:00 p.m. – 7:35 p.m.	Ad Bax, NIH, NIDDK NMR study of the pre-fusion to post-fusion transition of the gp41 ectodomain
7:35 p.m. – 8:10 p.m.	Kartik Chandran, Albert Einstein College of Medicine, New York Lipid and protein requirements for membrane fusion and cell entry by emerging RNA viruses
8:10 p.m. – 8:25 p.m.	Short Talk: Jinwoo Lee, University of Virginia (Poster #20) Structure of the Ebola virus envelope protein MPER/TM domain and its interaction with the fusion loop explains their fusion activity
8:25 p.m. – 8:35 p.m.	Break
8:35 p.m. – 8:50 p.m.	Short Talk: Petr Chlanda, NIH, NICHD (Poster #21) Structure of hemagglutinin induced hemifusion diaphragm and lipidic junction resolved by Volta phase plate cryo electron tomography
8:50 p.m. – 9:25 p.m.	Peter Kasson, University of Virginia Protein-lipid interactions and the role of cholesterol in influenza viral entry
9:25 p.m. – 10:00 p.m.	Andreas Herrmann, Humboldt University Berlin, Germany Single-virus-force spectroscopy unravels pH controlled steps of uncoating of influenza A virus

Wednesday, July 13, 2016

Time	Title/Topic Event
7:30 a.m. – 9:00 a.m.	BREAKFAST (Base Camp Grill)
7:30 a.m. – 12:00 p.m., 4:00 p.m. – 6:00 p.m.	Conference Registration (Base Village Conference Center)
9:00 a.m. – 12:00 p.m.	General Session (Chair: Jose Rizo-Rey) Intracellular Vesicle Traffic and Exocytosis
9:00 a.m. – 9:35 a.m.	José Rizo-Rey, University of Texas Southwestern Medical Center Reconstituting basic steps of synaptic vesicle docking, priming and fusion
9:35 a.m. – 10:10 a.m.	David Cafiso, University of Virginia Characterizing the structure, dynamics and molecular interactions of synaptotagmin-1 and regulatory proteins that drive neuronal exocytosis
10:10 a.m. – 10:35 a.m.	FASEB Sponsored Morning Coffee Break
10:35 a.m. - 10:50 a.m.	Short Talk: Adam Trexler, National Heart Lung and Blood Institute, NIH (Poster #23) Imaging the lipid environment at sites of exocytosis
10:50 a.m. – 11:25 a.m.	Mary Munson, University of Massachusetts Medical School Architecture of the yeast exocyst complex
11:25 a.m. – 12:00 p.m.	Manfred Lindau, Cornell University The nanomechanical mechanism of exocytotic fusion pore formation
12:00 p.m. – 1:00 p.m.	LUNCH and Meet the Experts (Base Camp Grill)
2:00 p.m. – 4:00 p.m.	Poster Session 3
4:00 p.m. – 5:15 p.m.	Special Short Talk Session (Chair: Jonathan Sachs) Membrane Proteins and Disease
4:00 p.m. – 4:15 p.m.	Short Talk: Alexey S. Ladokhin, University of Kansas (Poster #29) Does the pH-dependent trigger in diphtheria toxin T domain come with a safety latch?
4:15 p.m. – 4:30 p.m.	Short Talk: Mathias Lösche, Carnegie Mellon University, NIST (Poster #33) Neutron reflection and MD simulation for the structural and functional characterization of membrane-associated proteins
4:30 p.m. – 4:45 p.m.	Break
4:45 p.m. – 5:00 p.m.	Short Talk: Alessandro Bosco, Karolinska Institutet (Poster #34) Understanding Eph receptor clustering with DNA nanotechnology
5:00 p.m. – 5:15 p.m.	Short Talk: Jonathan N. Sachs, University of Minnesota (Poster #35) TNF receptor dynamics: energetics of TM domain conformational dynamics and inhibition through targeting pre-ligand assembly
5:30 p.m. – 6:00 p.m.	Business Meeting
6:00 p.m. – 7:00 p.m.	Conference Registration (Base Village Conference Center)
6:00 p.m. – 7:00 p.m.	DINNER (Base Camp Grill)
7:00 p.m. – 10:00 p.m.	General Session (Chair: Patricia Bassereau) Shaping Membranes
7:00 p.m. – 7:35 p.m.	Patricia Bassereau, Institut Curie and CNRS, Paris, France New mechanical actions of BAR-domain proteins on fluid membranes
7:35 p.m. – 8:10 p.m.	Greg Voth, University of Chicago

8:10 p.m. – 8:25 p.m.	Membrane remodeling by proteins: Insights and surprises from multiscale computer simulation Short Talk: Svetlana Baoukina, University of Calgary (Poster #37) Curvature-induced lipid sorting in plasma membrane tethers
8:25 p.m. – 8:35 p.m.	Break
8:35 p.m. – 8:50 p.m.	Short Talk: Edward Lyman, University of Delaware (Poster #40) Substructure and subdiffusion in chain-ordered lipid mixtures
8:50 p.m. – 9:25 p.m.	Tobias Baumgart, University of Pennsylvania Mechanisms of membrane curvature generation
9:25 p.m. – 10:00 p.m.	Sarah Veatch, University of Michigan Ordered membrane domains promote receptor activation in B cell lymphocytes

Thursday, July 14, 2016

Time a.m. – Time p.m.	Title/Topic Event
7:30 a.m. – 9:00 a.m.	BREAKFAST (Base Camp Grill)
7:30 a.m. – 12:00 p.m., 4:00 p.m. – 6:00 p.m.	Conference Registration (Base Village Conference Center)
9:00 a.m. – 12:00 p.m.	General Session (Chair: Barbara Baird) Membrane Clusters and Domains
9:00 a.m. – 9:35 a.m.	Barbara Baird, Cornell University Zooming in and out on cellular signaling mediated by IgE-receptors
9:35 a.m. – 10:10 a.m.	Suliana Manley, EPF Lausanne, Switzerland Expanding horizons with high-throughput super-resolution microscopy
10:10 a.m. – 10:35 a.m.	FASEB Sponsored Morning Coffee Break
10:35 a.m. - 10:50 a.m.	Short Talk: Ilya Leventhal, University of Texas Health Science Center, Houston (Poster #42) Omega-3 polyunsaturated fatty acids direct differentiation of the membrane phenotype in mesenchymal stem cells to potentiate osteogenesis
10:50 a.m. – 11:25 a.m.	Christian Eggeling, University of Oxford, U.K. Novel insights from membrane bioactivity with advanced (super-resolution) optical microscopy
11:25 a.m. – 11:45 a.m.	Short Talk: Scott Hansen, University of California Berkeley (Poster #44) Geometry sensing based on stochastic composition fluctuations in a kinase-phosphatase competitive reaction
11:45 a.m. – 12:00 p.m.	Short Talk: Adam W. Smith, University of Akron (Poster #45) Resolving a GPCR dimerization interface in human cone opsins
12:00 p.m. – 1:00 p.m.	LUNCH (Base Camp Grill)
1:00 p.m. – 4:00 p.m.	Free time Hiking/Biking/Visit to Aspen etc. Group Activity: White Water Rafting – 1:00 p.m. departure from Base Village Conference Center (box lunch provided by Base Camp Grill) 4:30 p.m. return to Base Village Conference Center
4:00 p.m. – 6:00 p.m.	Poster Session 4
6:00 p.m. – 7:00 p.m.	DINNER (Base Camp Grill)
7:00 p.m. – 10:00 p.m.	General Session (Chair: Lynmarie Thompson)

	Signaling through the Membrane
7:00 p.m. – 7:35 p.m.	Lynmarie Thompson, University of Massachusetts Structure and dynamics of the cytoplasmic domain of bacterial chemotaxis receptors in native-like signaling arrays
7:35 p.m. – 8:10 p.m.	Joseph Falke, University of Colorado Regulation of phosphoinositide-3-kinase by PKC, MARCKS, Ras and calmodulin: Single molecule analysis of a reconstituted signaling pathway
8:10 p.m. – 8:25 p.m.	Short Talk: Christopher King, Johns Hopkins University (Poster #47) In vivo studies of VEGFR2 interactions in the absence and presence of VEGF
8:25 p.m. – 8:35 p.m.	Break
8:35 p.m. – 8:50 p.m.	Short Talk: Punya Navarathnarajah, University of Texas Southwestern Med.Ctr.(Poster #52) Potent phospholipase C- β activation by G α_q achieved despite weak binding affinity
8:50 p.m. – 9:25 p.m.	Alexandra Newton, University of California, San Diego Spatiotemporal dynamics of signaling by protein kinase C
9:25 p.m. – 10:00 p.m.	Suzanne Scarlata, Worcester Polytechnic Institute, Massachusetts Caveolae membrane domains connect G protein – mediated calcium signals with mechanical deformation

Friday, July 15, 2016

Time a.m. – Time p.m.	Title/Topic Event
7:30 a.m. – 12:00 p.m.	Conference Registration (Base Village Conference Center)
7:30 a.m. – 9:00 a.m.	BREAKFAST (Base Camp Grill)
9:00 a.m. – 11:00 a.m.	General Session (Chair: Gebhard Schertler) Signaling through G-Protein Coupled Receptors
9:00 a.m. – 9:35 a.m.	Gebhard Schertler, Paul Scherrer Institute and ETH Zurich, Switzerland Structural biology of GPCRs: The impact of NMR and X-ray free electron lasers
9:35 a.m. – 10:10 a.m.	Chris Tate, University of Cambridge, U.K. Structure of the human adenosine A2a receptor bound to an engineered G protein
10:10 a.m. – 10:45 a.m.	Henrik Dohlman, University of North Carolina Protons as second messenger regulators of G protein signaling
10:45 a.m. – 11:00 a.m.	FASEB Sponsored Morning Coffee Break
	Closing Keynote and Conference Closing
11:00 a.m. – 12:15 p.m.	Brian Kobilka, Stanford University (Nobel Laureate) Structural insights into the dynamic process of G protein coupled receptor signaling
12:15 p.m.	LUNCH to Go and DEPARTURES (Base Camp Grill)

END OF CONFERENCE

For additional information contact:
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