

COMPPÅ Symposium on Membrane Protein Production and Analysis

Roy and Diana Vagelos Education Center
Columbia University Medical Center
New York, USA

17-19 June 2018

Scientific Organizer:

Wayne A. Hendrickson, Columbia University

Conference Organizers:

Wayne A. Hendrickson, Columbia University
Filippo Mancia, Columbia University
Renato Bruni, COMPPÅ, New York Structural Biology Center
Brian Kloss, COMPPÅ, New York Structural Biology Center
Ravi Kalathur, COMPPÅ, New York Structural Biology Center

Program

Sunday 17 June 2018

- 3:00 **Registration**
- 5:00 **Opening welcome** – Willa Appel (NYSBC) and Wayne Hendrickson
- Session 1** – Chair Filippo Mancia
- 5:10 Kasper Locher – *Structural insight into bacterial and eukaryotic glycosyltransferases facilitating protein N-glycosylation*
- 5:40 Liz Carpenter – *Structures of the glycosylation enzyme DPAGT1 help to explain how some congenital disorders of glycosylation arise*
- 6:10 *Poster Bash*
- 7:30 **Dinner & Posters**

Monday 18 June 2018

- Session 2** – Chair Wayne Hendrickson
- 9:00 Irina Serysheva – *Ligand-mediated Allostery of IP3R Channel: Lessons from Cryo-EM*
- 9:30 Erhu Cao – *Structures and mechanisms of the polycystic disease channel PKD2*
- 10:00 Kei Saotome – *Structure of the mechanically activated ion channel Piezo1*
- 10:15 Giovanna Scapin – *Single particle Cryo-EM structure of the insulin receptor in complex with insulin*
- 10:30 **Coffee Break**
- Session 3** – Chair Brian Kloss
- 11:00 Martin Caffrey – *Mesophase Mirabilis. The Lipid Cubic Phase as a System for Investigating Membrane Proteins*
- 11:30 Tony Kossiakoff – *Pre-Fabs: Developing “Plug and Play” fiducial marks*
- 12:00 Simon Scheuring – *High Speed Atomic Force Microscopy: Real Time Structural Dynamics of Unlabeled Channels and Transporters in Membrane*
- 12:15 Michael Marty – *Combining native mass spectrometry and nanodiscs to analyze interactions within membranes*
- 12:30 **Lunch**
- Session 4** – Chair Oliver Clarke
- 1:30 Dan Minor – *Discovery of a Cryptic, Druggable Site in the Heart of a Polymodal Ion Channel*
- 2:00 Eduardo Perozo – *Structural Basis of Voltage-Dependent Gating in Ion Channels and Enzymes*
- 2:30 Joel Butterwick – *Cryo-EM structure of Orco reveals the molecular basis for insect olfaction*

Program

- 2:45 Maria Falzone – *Molecular mechanisms of phospholipid scrambling*
- 3:00 Milena Laban – *Structural studies of lipid flippases using cryo-electron microscopy*
- 3:15 **Coffee Break**
- Session 5** – Chair Bob Stroud
- 3:45 Radu Aricescu – *Human GABA_A receptor structures and signalling mechanisms*
- 4:15 Andreas Plückthun – *Evolving GPCRs for enabling structural and functional studies*
- 4:45 Glenn Gregorio – *Single-molecule analysis of ligand efficacy in β 2AR-G protein activation*
- 5:00 Daniel Wacker – *Crystallographic Studies of GPCRs template the discovery of novel neuropsychiatric drugs*
- 5:15 **Break**
- Session 6** – Chair Michael Wiener
- 5:30 Bil Clemons – *Computational tools to solve the membrane protein expression problem*
- 6:00 Lucy Forrest – *COMPPÅring and analyzing the structures and symmetries of membrane proteins using EncoMPASS*
- 6:30 Karen Fleming – *Protein Folding Experiments Reveal Foundations of Stability in Membrane Proteins*
- 7:00 **Dinner at The Faculty Club**

Tuesday 19 June 2018

- Session 7** – Chair Matthias Quick
- 9:00 Chris Miller – *A CLC-type F-/H⁺ antiporter in ion-swapped conformations*
- 9:30 Ming Zhou – *Structure and mechanism of EIIC sugar transporters*
- 10:00 Rachelle Gaudet – *Panning for precious metals: Mechanics of a transition metal transporter*
- 10:15 Edward Pryor – *An update on detergent usage in Cryo-EM structure determination of membrane proteins*
- 10:30 **Coffee Break**
- Session 8** – Chair Janet Smith
- 11:00 Crina Nimigean – *Ligand discrimination and gating in CNG channels*
- 11:30 Poul Nissen – *The structure and dynamics of P-type ATPases*
- 12:00 Chang Sun – *Structure of the alternative complex III in a supercomplex with cytochrome oxidase*
- 12:15 Youzhong Guo – *Structure and activity of lipid bilayer within a membrane protein transporter*

Program

- 12:30 **Lunch**
- Session 9** – Chair Qun Liu
- 1:15 Randy Stockbridge – *The unusually selective Fluc family fluoride channels*
- 1:45 Susan Buchanan – *Structural insight into the biogenesis of beta barrel membrane proteins*
- 2:15 Frederick Rubino – *The flippase MurJ requires membrane potential to export the bacterial cell wall monomer Lipid II*
- 2:30 Yuhang Chen – *Gating mechanism of the TRIC channel for Ca²⁺ handling in intracellular stores*
- 2:45 **Coffee Break**
- Session 10** – Chair Renato Bruni
- 3:15 Shigeyuki Yokoyama – *Cell-free production of membrane proteins in soluble membrane fragments*
- 3:45 Bruno Miroux – *Shaping bacterial cells with genetics to produce membrane proteins*
- 4:00 Jonathan Bailey – *A continuous fluorescence resonance energy transfer assay for monitoring the activity of an essential bacterial lipoprotein signal protease II (LspA) suitable for high-throughput drug screening*
- 4:15 Chih-Ta Chien – *An adaptable phospholipid membrane mimetic system for solution NMR studies of membrane proteins*
- 4:30 **Break**
- Session 11** – Chair Larry Shapiro
- 4:45 Nieng Yan – *How is electrical signal generated? Structural and mechanistic investigations of Nav channels*
- 5:15 Werner Kühlbrandt – *CryoEM of energy-converting membrane protein complexes*
- 5:45 **Concluding Farewell** – Wayne Hendrickson