INTERNATIONAL SYMPOSIUM

CRC 1507

NEW HORIZONS IN MEMBRANE BIOLOGY

October 9 – 11, 2024

Goethe University Frankfurt, Otto Stern Center

PROGRAM

CRC 1507 SYMPOSIUM
"NEW HORIZONS IN MEMBRANE BIOLOGY"

October 9-11, 2024
Lecture Hall H2 – Otto Stern Center
Campus Riedberg – Goethe University Frankfurt

Wednesday, October 9, 2024

12:00 – 13:00	Registration & Poster set up

Session 1
Chair: **Nina Morgner**

13:00 – 13:10	**Robert Tampé** Welcome
13:10 – 13:40	**Carol Robinson** Mass spectrometry of membrane protein targets – from detergent micelles to the blood brain barrier
13:40 – 14:10	**Stephan Pless** Regulation of the sodium leak channel complex by protein-protein interactions
14:10 – 14:25	**Aline Koch** Uptake and transport of spray-delivered RNA in plants – Overcoming the membrane barrier
14:25 – 14:40	**Sebastian Thallmair** Inositol trisphosphate affinity of Tubby reveals cooperativity mechanism for membrane binding
14:40 – 14:55	**Stefan Schäfer** Membrane pore formation by bacterial and human gasdermins
14:55 – 15:10	**Themis Lazaridis** Classical simulations of proton permeation through proton channels
15:10 – 15:45	*Coffee break*

Session 2

Chair: **Amparo Acker-Palmer**

15:45 – 16:15 **Sheena Radford**
Building a wall: Molecular insights into how bacteria do it

16:15 – 16:30 **Simon Scheuring**
High-speed atomic force microscopy for dynamic single molecule structural biology

16:30 – 16:45 **Christoph Nocker**
Peptide transport across membranes visualized at single-molecule level

16:45 – 17:00 **Claudia Catapano**
Monitoring ligand-dependent HER2 activation in living cells with single-molecule resolution

17:00 – 17:15 **Larissa Socrier**
Optical control of photo-lipid enriched membranes: impact of isomerization on domains and lipid-protein complexes

17:15 – 17:30 *Short break*

Poster Flash Session

Chairs: **Alexander Gottschalk** & **Josef Wachtveitl**

17:30 – 17:33 **Lesley Anson** **Poster 1**
Science Colab: empowering scientific communities to publish, review and curate their research

17:33 – 17:36 **Johanna Vogenstahl** **Poster 66**
Endothelial FLRT2 regulates CNS vascularization and cerebellar development

17:36 – 17:39 **Simon Umbach** **Poster 65**
Nanotransfer of membrane proteins into living cells

17:39 – 17:42 **Celina Thiel** **Poster 63**
Toward deciphering the molecular details of electrical signalling in *Bacillus subtilis* biofilms

17:42 – 17:45 **Elena Spinetti** **Poster 58**
Molecular dynamics simulations shed light on critical events in the early stages of human IRE1α activation

17:45 – 17:48	**Jonathan Schiller** Detailed insights into assembly of the Complex I proximal proton pumping module: a jig saw puzzle	**Poster 54**
17:48 – 17:51	**Jasmin Schäfer** Global protein import proteomics reveal distinct modulation of the mitochondrial and endoplasmic reticulum (ER) import landscape upon acute organellar perturbation	**Poster 53**
17:51 – 17:54	**Jakub Rzeszótko** Unveiling the mysteries of SLC26 transporters: The role of the STAS domain	**Poster 51**
17:54 – 17:57	**Swarnendu Roy** Understanding the role of ion flux in early TCR response	**Poster 50**
17:57 – 18:00	**Tobias Rath** Analysis of lipid transport mechanisms in Gram negative bacteria via native mass spectrometry	**Poster 47**
18:00 – 18:03	**Eszter Lodinsky** Elucidating proton transport and energisation in the multidrug tripartite efflux pump AcrAB-TolC	**Poster 38**
18:03 – 18:06	**Gerrit Lamm** Ultrafast dynamics of a light-driven microbial sodium pump *Erythrobacter* rhodopsin	**Poster 33**
18:06 – 18:09	**Desislava Glushkova** Quantification of biophysical parameters of biological membranes in cryo-electron tomograms	**Poster 21**
18:09 – 18:12	**Nora Elvers** Gap junction-dependent electrical coupling in muscular organs, analyzed by voltage imaging	**Poster 16**
18:12 – 18:15	**Victor Dubach** Structural and mechanistic insights into *Streptococcus pneumonia* NADPH oxidase	**Poster 14**
18:15 – 18:18	**Yasmine Sophi Damayanti** A disease-causing mutation in the TRPV4 disordered region impedes lipid-dependent channel activity	**Poster 12**

18:18 – 18:21	**Kerby Chok** Expanding opto and biochemical tools to probe structure dynamics of an ABC transporter-MsbA with solid state NMR	**Poster 10**
18:21 – 18:24	**Pia Briger** Exploring membrane dynamics: A tiny transmembrane protein that makes membranes bend and bow	**Poster 7**
18:24 – 18:27	**Eva Brencher** Palmitoyltransferases and their interaction with substrates and chaperone proteins	**Poster 6**
18:27 – 18:30	**Halle Andrews-Clark** Investigating the role of Snd1 in membrane protein biogenesis by the SRP-independent pathway	**Poster 3**
18:30 – 20:00	**Poster Session with Pretzels & Beer** Otto Stern Center	

Thursday, October 10, 2024

Session 3

Chair: **Janet Vonck**

08:30 – 09:00	**Natividad Ruiz** Lipid transporters that build the outer membrane in Gram-negative bacteria
09:00 – 09:30	**Marc Baldus** In-situ solid-state NMR in complex biomolecules
09:30 – 10:00	**Markus Weingarth** Cracking nature's recipes to design lipid-targeting antibiotics
10:00 – 10:15	**Benesh Joseph** Dynamic basis of lipopolysaccharide export by $LptB_2FGC$
10:15 – 10:30	**Aaron Klausnitzer** Elucidating conformational dynamics of $LptB_2FGC$ in different states of LPS translocation using solid-state NMR
10:30 – 11:00	*Coffee break*

Session 4

Chair: **Inga Hänelt**

11:00 – 11:30	**Crina Nimigean** Mechanism of propofol inhibition of HCN1 channels
11:30 – 12:00	**Alexander Sobolevsky** Regulation and gating of ionotropic glutamate receptors
12:00 – 12:15	**Jakob Silberberg** Post-translational regulation of the K^+ pump KdpFABC by the tandem sensor kinase KdpD
12:15 – 12:30	**Ute Hellmich** Multilayered regulatory networks in the intrinsically disordered regions of TRP ion channels
12:30 – 14:00	*Lunch break*

Session 5

Chair: **Roberto Covino**

14:00 – 14:30 **Francesca Marassi**
NMR structural analysis in the native state – insights to bacterial outer membrane vesiculation

14:30 – 15:00 **Ilya Levental**
Lipid number asymmetry: The hidden dimension of mammalian plasma membranes

15:00 – 15:30 **Gülsün Elif Karagöz**
Unique mechanisms for monitoring endoplasmic reticulum homeostasis

15:30 – 15:45 **Konstantin Mineev**
Ligand/receptor interactions of FGFR and EGF receptor tyrosine kinases - an NMR prospective

15:45 – 16:00 **Lukas Sušac**
Structure of a fully assembled tumor-specific T cell receptor ligated by pMHC

16:00 – 16:30 *Coffee break*

Session 6

Chair: **Klaas Martinus Pos**

16:30 – 16:45 **Jennifer Earp**
Structural basis of siderophore and drug export by *Mycobacterium tuberculosis*

16:45 – 17:00 **Darja Cernova**
Deciphering the dynamics of the peptide loading complex in membrane environment

17:00 – 17:30 **Simon Newstead**
Regulating pain - Identification of SLC45A4 as a pain gene encoding a polyamine transporter

17:30 – 18:00 **Filippo Mancia**
Structural basis of lipopolysaccharide biosynthesis and modification

19:00 **Conference Dinner**
Canteen π x Gaumen

Friday, October 11, 2024

Session 7

Chair: **Clemens Glaubitz**

08:30 – 09:00	**Lynette Cegelski** Discovery and new chemistry at the bacterial cell surface
09:00 – 09:30	**Sebastian Hiller** Killing the prokaryotic and the eukaryotic cell at the membrane
09:30 – 10:00	**Alexej Kedrov** Assembly and dynamics of the exopopolysaccharide transporter PelBC of *Pseudomonas aeruginosa*
10:00 – 10:15	**Rana Hussein** From light to life: Capturing photosynthetic catalysts at atomic resolution
10:15 – 10:30	**Mayank Sharma** Redefining membrane remodeling system of chloroplast with new players
10:30 – 11:00	*Coffee break*

Session 8

Chair: **Melanie McDowell**

11:00 – 11:30	**David Drew** Unlocking the determinants for sugar translocation in GLUT transporters
11:30 – 12:00	**Marek Basler** Spatial and temporal regulation of Type 6 Secretion System dynamics during interactions with bacterial and eukaryotic cells
12:00 – 12:15	**Dirk Schneider** Membrane interaction of a prokaryotic ESCRT-III protein
12:15 – 12:30	**Günter Fritz** Conformational coupling of Na^+-pumping by NADH:quinone oxidoreductase of Vibrio cholerae
12:30 – 14:00	*Lunch break*

Session 9

Chair: **Gerhard Hummer**

14:00 – 14:30	**Francesca Vallese** Architecture of the erythrocytes ankyrin-1 complex
14:30 – 15:00	**Jan Schuller** Molecular basis of ancient respiratory sodium pumps
15:00 – 15:30	**Ville Kaila** Deciphering energy transduction mechanisms of complex bioenergetic machines
15:30 – 15:45	**Balázs Fábián** Mechanism of the NhaA secondary active transporter from constant pH molecular dynamics simulations
15:45 – 16:00	**Sergio Cruz-León** Unveiling the cellular landscapes with high-confidence 3D template matching
16:00 – 16:30	*Coffee break*

Session 10

Chair: **Bonnie Murphy**

16:30 – 16:45	**Milton T. Stubbs** Structures of Arf1-coated membrane tubules
16:45 – 17:00	**Volker Zickermann** Insights into the structural basis of complex I biogenesis and the remodeling of cardiolipin
17:00 – 17:30	**Judy Hirst** High-resolution cryoEM structures of respiratory complex I in energy-transducing membranes
17:30 – 18:00	**André Hoelz** Structure and function of the nuclear pore
18:00 – 18:10	**Lesley Anson & Inga Hänelt** Poster award ceremony
18:10 – 18:20	**Robert Tampé** Final remarks