



New challenges in protein translocation across membranes

17 – 21 September 2022 | Sant Feliu de Guixols, Spain

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Journal

Organizer Doron Rapaport, Tübingen University, Germany
Co-Organizers Stephen High, University of Manchester, UK
 Danja Schünemann, Ruhr University Bochum, Germany

Program

17 September 2022

12:00-16:00 Registration

Session 1: Proteostasis of ER proteins

Chair: **Colin Adrain**

16:00-16:15 Welcome words

Organizers

16:15-16:50 Mechanisms of multipass membrane protein biogenesis

Ramanujan Hegde

Keynote lecture

16:50-17:15 How an ER membrane protein quality control complex is hijacked by SARS-CoV-2 to cause infection

Billy Tsai

17:15-17:35 Corrective quality control by the P5A-ATPase protects mislocalized and misinserted proteins from ERAD

Michael McKenna

17:35-18:00 Coffee break

18:00-18:25 Ribosome profiling reveals a hierarchical organization of protein translocation pathways in bacteria

Shu-ou Shan

18:25-18:50 New jobs for an old acquaintance in protein translocation: the signal peptidase complex in protein quality control

Matthias Feige

19:00-20:30 Dinner

20:30-22:00 Social event

18 September 2022

Session 2: Unusual aspects of protein transport pathways

Chair: **Bettina Warscheid**

09:00-09:25 Protein targeting to lipid droplets and the importance of inter-organelle communication

Bianca Schrul

09:25-09:50 Protein translocation into the newly evolved photosynthetic organelles of the amoeba *Paulinella chromatophora*

Eva Nowack

09:50-10:10 Derlin Dfm1 employs a chaperone function to resolve misfolded membrane protein stress

Rachel Kandel

10:10-10:30 Reduced DNAJC3 expression affects protein translocation across the ER membrane and attenuates the down-modulating effect of the translocation inhibitor cyclotriazadisulfonamide

Eva Pauwels

10:30-11:00 Coffee break

11:00-11:25 You take the high road and I take the low road - new targeting pathways for proteins to organelles

Maya Schuldiner

- 11:25-11:50 The role of derlin rhomboid pseudoprotease in maintaining sphingolipid homeostasis
Sonya Neal
- 11:50-12:10 Uncovering the pro-cancerous functions of PDI and PDI-like proteins in the cytosol of cancer cells
Faiza Amterat
- 12:10-12:35 Flash talks - selected from abstracts (12 x 2 min each)
- 12:35-14:00 Lunch
- 14:00-15:00 Career development
Steve High & Danja Schünemann
Moderated panel discussion
- 15:00-17:00 Poster session I (posters #1-34, odd numbers)

Session 3: Protein import into peroxisomes

Chair: **Maya Schuldiner**

- 17:00-17:25 Protein import into peroxisomes
Ralf Erdmann
- 17:25-17:50 Targeting and function of tail-anchored membrane proteins at peroxisomes
Michael Schrader
- 17:50-18:15 The peroxisomal proteome: from biogenesis to dynamics
Bettina Warscheid
- 18:15-18:35 Zooming in: unravelling the role of peroxisomal contact sites using STED nanoscopy
Eline de Lange
- 18:35-18:55 CryoEM structure of the peroxisomal AAA-complex Pex1/Pex6 processing a substrate
Maximilian Rüttermann
- 19:00-20:30 Dinner
- 20:30-22:00 Poster session II (posters #1-34, even numbers)

19 September 2022

Session 4: Translocation of proteins in chloroplasts

Chair: **Paul Jarvis**

- 09:00-09:25 More surprises in chloroplast protein import
Masato Nakai
- 09:25-09:50 Biogenesis and translocation of chloroplast proteins during heat acclimation
Felix Willmund
- 09:50-10:10 Assembly and organization of chloroplast protein import complex
Sreedhar Nellaepalli
- 10:10-10:30 Towards an alternative model of Tat-dependent protein transport
Ralf Bernd Klösgen
- 10:30-11:00 Coffee break
- 11:00-11:25 Hydrophobic mismatch is a key element for Tat protein transport
Steven Theg
- 11:25-11:50 Protein import into plastids: better signals and a better bridge
Hsou-min Li

- 11:50-12:10 Grp23, a new component of the chloroplast import machinery
Birgit Agne
- 12:10-12:35 Flash talks - selected from abstracts (12 x 2 min each)
- 12:35-14:00 Lunch
- 14:00-15:00 Gender and ethnicity issues
Maya Schuldiner
Moderated panel discussion
- 15:00-17:00 Poster session III (posters #35-67, odd numbers)

Session 5: Structural aspects of import machineries

Chair: **Kostas Tokatlidis**

- 17:00-17:25 The role of nascent-polypeptide-associated complex in SRP mediated protein targeting to the ER
Nenad Ban
- 17:25-17:50 Structural and functional insights into inhibition of the Sec61 translocon
Rachel Simmonds
- 17:50-18:15 Biogenesis of mitochondrial outer membrane proteins
Rebecca Voorhees
- 18:15-18:40 Mechanisms of membrane protein biogenesis by the GET insertase complex
Irmisinning
- 18:40-19:00 Structural characterization of the catalytic cycle of the chaperone Get3 from a human pathogen
Michelle Fry
- 19:00-20:30 Dinner
- 20:30-22:00 Poster session IV (posters #35-67, even numbers)

20 September 2022

Session 6: Mitochondrial biogenesis

Chair: **Abed Azem**

- 09:00-09:25 Mechanisms for mitochondrial protein translocation and membrane insertion
Nils Wiedemann
- 09:25-09:50 Cross-talk between mitochondrial protein translocation and cellular stress response pathways
Christian Münch
- 09:50-10:15 Mitochondrial protein translocation machinery under stress
Agnieszka Chacińska
- 10:15-10:35 Elucidating the cellular functions of Timm50, a mitochondrial transport protein, in neurons and astrocytes
Eyal Paz
- 10:35-11:00 Coffee break
- 11:00-11:25 Unconventional import to the mitochondrial intermembrane space allows a bypass of the disulphide relay to sustain mitochondrial fitness under stress
Kostas Tokatlidis
- 11:25-11:45 Structural basis of precursor-protein handling at the mitochondrial entry gate
Undina Guillerm

- 11:45-12:05 How are MRPs that lack targeting sequence imported into mitochondria?
Tamara Flohr
- 12:05-13:00 Lunch
- 13:10-16:45 Optional tour to Girona

Session 7: Secretion systems

Chair: **Irmi Sinning**

- 16:45-17:10 Bacterial protein export: dynamic machines for dynamic clients
Tassos Economou
- 17:10-17:30 Structural insights into diversity and translocation mechanisms of the mycobacterial Type VII Secretion Systems
Christina Ritter
- 17:30-17:50 A definitive mechanism for protein transport through the core bacterial Sec machinery
William Allen
- 17:50-18:10 BAM orchestrates OMP biogenesis using a budding mechanism
Nicholas Noinaj
- 18:10-18:45 Protein machineries in transport and re-transport of mitochondrial proteins
Toshiya Endo
Closing talk
- 19:00-23:00 Farewell Dinner with music show

21 September 2022

- 8:00 Breakfast and departure