

2nd International Meeting of the FOR2290
'Protein Recognition and Processing in the Membrane'

May 4–6, 2022, Feldkirchen-Westerham – Munich (Germany)

Wednesday, May 4, 2022

13:00 *Check-in & Registration*

14:00 *Welcome Notes: Dieter Langosch*

14:15 Keynote Lecture

Chair: Harald Steiner

14:15 **Lucía Chávez-Gutiérrez:** Decoding γ -Secretases and their Roles in Alzheimer's Pathogenesis

15:00 - 16:00 Session 1: Physiology of Regulated Intramembrane Proteolysis I

Chair: Walter Stöcker

15:00 **Christian Haass / Kai Schlepckow:** Identification of TREM2 Cleavage Sites and their Role in Alzheimer's Disease

15:20 **Stefan Rose-John:** ADAM17 in Autoimmunity and Cancer

15:40 **Irit Sagi:** Newly Discovered Natural Anti-MT1MMP Human Antibodies Derived from Cancer Patients

16:00-16:30 *Coffee break*

16:30 - 18:00 Session 2: Physiology of Regulated Intramembrane Proteolysis II

Chair: Regina Fluhrer

16:30 **Stefan Lichtenthaler:** Naturally Short Substrates of γ -Secretase

16:50 **Wim Annaert:** On the Origin of Endolysosomal Dysfunction in Presenilin/ γ -Secretase Deficient Cells

17:10 **Bernd Schröder:** Signal Peptide Peptidase-Like Intramembrane Proteases – from Immune Cells to Metabolic Regulation

17:30 Poster Lightning Talks

19:00 *Dinner*

20:30 Poster Session I (No. 1 - 14)

Thursday, May 5, 2022

09:00 - 10:35 Session 3: Mechanisms in Intramembrane Proteolysis I

Chair: Daniel Huster

- 9:00 **Regina Fluhrer:** Determinants of SPP/SPPL Substrates
- 9:20 **Kvido Stříšovský:** Structural Mechanism of Rhomboid Intramembrane Proteases and its Implications
- 9:40 **Lisa Münter:** Rhomboid Protease RHBDL4 in Energy Metabolism
- 10:00 **Harald Steiner:** Exosite Interactions as Targets for Substrate-Selective γ -Secretase Inhibition
- 10:20 **Stephan Breimann:** Substrate-Defining Features of γ -Secretase Revealed by Comparative Physicochemical Profiling and Explainable AI

10:35 – 11:10 *Coffee break*

11:10 - 13:00 Session 4: Mechanisms in Intramembrane Proteolysis II

Chair: Stefan Lichtenthaler

- 11:10 **Christina Scharnagl:** Exosite-Dependent Recognition by γ -Secretase
- 11:30 **Dieter Langosch:** Role of Transmembrane Domains in Intramembrane Proteolysis by γ -Secretase
- 11:50 **Claudia Muhle-Goll:** Conformational Restriction in Substrate Transmembrane Domains?
- 12:10 **Franz Hagn:** Investigating Structural and Dynamical Features of Membrane Protein Functionality in a Native Environment
- 12:25 **Martin Zacharias:** Studying γ -Secretase Function by Molecular Dynamics Simulations
- 12:45 **Yinglong Miao:** Mechanisms of γ -Secretase Activation and Processive Proteolysis of Amyloid Precursor Protein

13:00 – 16:00 *Lunch & Recreation*

16:00 – 16:30 *Coffee break*

16:30 - 17:50 Session 5: Mechanisms in Intramembrane Proteolysis III

Chair: Claudia-Muhle-Goll

- 16:30 **Matthew Freeman:** Searching for Substrates: What Do Rhomboid Proteases Really Do in Humans?
- 16:50 **Daniel Huster:** Rhomboid-Catalyzed Intramembrane Proteolysis Requires Hydrophobic Matching with the Surrounding Lipid Bilayer
- 17:10 **Adam Lange:** Studying Structure, Dynamics, and Inhibition of Intramembrane Proteases in a Native-Like Environment by Solid-State NMR
- 17:30 **Friedrich Förster:** The First Cut Is the Deepest – Structural Insights into Signal Peptide Cleavage in the ER

19:00 *Dinner*

20:30 Poster Session II (No. 15 - 27)

Friday, May 6, 2022

9:00 Keynote Lecture

Chair: Marius Lemberg

9:00 **Thomas Langer:** Proteolytic Control of Mitochondrial Membrane Homeostasis

9:45 - 10:45 Session 6: Membrane Protein Quality Control I

Chair: Dieter Langosch

9:45 **Sonya Neal:** The Role of Rhomboid Pseudoprotease Derlins in Resolving Misfolded Protein Stress

10:05 **Pedro Carvalho:** The Derlin Dfm1 Promotes Retrotranslocation of Folded Protein Domains from the ER

10:25 **Alexander Stein:** Membrane Protein Retrotranslocation during ER Associated Protein Degradation (ERAD)

10:45 – 11:30 *Coffee break*

11:30 - 12:45 Session 7: Membrane Protein Quality Control II

Chair: Martin Zacharias

11:30 **Susan Shao:** The P5A-ATPase Protects Misoriented Proteins from ERAD

11:50 **Matthias Feige:** Intra-Membrane Client Recognition by the Molecular Chaperone Calnexin

12:10 **Christoph Kaether:** YIPF5 and GOT1A/B are Part of a Stress Sensor Controlling ER Export

12:25 **Marius Lemberg:** The Human Signal Peptidase Complex Serves as a Quality Control Enzyme for Membrane Proteins

12:45 *Closing Remarks: Harald Steiner & Marius Lemberg*

13:00 *Lunch & Departure*

Venue

IHK Westerham
Von-Andrian-Str. 5
83620 Feldkirchen-Westerham (München)

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