6. Ulm Meeting – Biophysics of Amyloid Formation

Virtual meeting

22 February 2022

09:00 ***Marcus Fändrich*** | Ulm University, Germany
Welcome Address

Chair Margaret Sunde

09:00 ***Astrid O. Gräslund*** **|** Stockholm University, Sweden
The amyloid beta peptide: biophysical studies of interactions, structures and aggregation

09:30 ***Ruiqing Ni*** **|** University of Zurich, Switzerland
High precision in vivo multi-scale imaging of Alzheimer's β-amyloid deposits

09:50 ***David Klenerman*** **|** University of Cambridge, UK
Tau aggregation and spreading in neurodegenerative disease

10:20 ***Amberley Stephens*** **|** University of Cambridge, UK
Decreased water mobility increases alpha-synuclein protein misfolding

10:40 ***Wolfgang Hoyer*** **|** Heinrich Heine University Düsseldorf, Germany
Inhibitor-substrate cooperativity in blocking of α-synuclein fibril

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11:00 **Break**

Chair Karin Kühnel

11:30 ***Emma Sparr*** **|** Lund University, Sweden
α-synuclein interactions with lipid membranes-cooperative binding and membrane deformation

11:50 ***Nunilo Cremades*** **|** University of Zaragoza, Spain
Heterogeneous vs homogeneous nucleation in alpha-synuclein amyloid formation

12:10 ***John Collinge*** **|** University College London, UK
Understanding prion propagation and neurotoxicity

12:40 ***Itzel Condado-Morales*** **|** Institute of Neuropathology, University Hospital Zurich, Switzerland
Scaling analysis reveals the mechanism and rates of prion replication in vivo

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13:00 **Break**

Chair Roland Riek

14:00 ***Qiuye Li*** **|** Case Western Reserve University,USA
Cryo-EM structure of disease-related prion fibrils provides insights into seeding barriers

14:20 ***Yann Fichou*** **|** IECB / University Bordeaux, France
Mechanisms of tau protein aggregation

14:40 ***Cláudio M. Gomes*** **|** University of Lisbon, Portugal
The chaperone activity of S100B prevents tau aggregation and seeding

15:10 ***Susanne Aileen Funke*** **|** Hochschule für angewandte Wissenschaften Coburg, Germany
Potent Tau aggregation inhibitor D-peptides selected using mirror image phage display

15:30 ***Michel Goedert*** **|** MRC Laboratory of Molecular Biology, UK
Cryo-EM structures of amyloid filaments from human brain

16:00 **Break**

Chair David S. Eisenberg

16:30 ***Robert Tycko*** **|** National Institutes of Health, USA
Structures and structural variations in amyloid-beta fibrils from brain tissue

17:00 ***Lewis E. Kay*** **|** University of Toronto, Canada
Seeing the invisible by solution NMR provides insight into protein aggregation

17:30 ***Byron Caughey*** **|** National Institutes of Health, Hamilton, USA
Prions at high resolution

18:00 **End of today's sessions**

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23 February 2022

Chair Yuji Goto

09:00 ***Daniel Otzen*** **|** Aarhus University, Denmark
Contrasting mechanisms of aggregation of pathological and functional amyloid

09:30 ***Frederic Rousseau*** **|** Switch Laboratory KU Leuven, Belgium
Heterotypic amyloid interactions and their effect on amyloid assembly

10:00 ***Christofer Lendel*** **|** KTH Royal Institute of Technology, Sweden
Food protein amyloid: structure, fibrillation mechanisms and cross-seeding

10:30 ***Ehud Gazit*** **|** Tel Aviv University, Israel
Metabolite and protein amyloid formation: Interplay and its pathological implications

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11:00 **Break**

Chair Per Hammarström

11:30 ***Aphrodite Kapurniotu*** **|** Technical University Munich, Germany
Designed peptides as cross-amyloid inhibitors of amyloid self-assembly of IAPP and Abeta42

12:00 ***Lucie Khemtemourian*** **|** University of Bordeaux, France
Modulation of IAPP fibril formation by intrinsic and extrinsic factors

12:20 ***Nicolas Guthertz*** **|** University of Leeds, UK
The effect of mutation on an aggregation-prone protein

12:40 ***Kichitaro Nakajima*** **|** Osaka University, Japan
Mechanism of supersaturation-limited onset of dialysis-related amyloidosis by β2-m

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13:00 **Break**

Chair Stefano Ricagno

14:00 ***Giampaolo Merlini*** **|** University of Pavia, Italy
What makes light chains amyloidogenic and alinical relevance

14:30 ***Lynn Radamaker*** **|** Ulm University, Germany
Cryo-EM structures of amyloid fibrils from AL amyloidosis

14:50 ***Andrea Cavalli*** **|** Institute for Research in Biomedicine, Switzerland
Antibody somatic mutations predict immunoglobulin light chain toxicity

15:20 ***Georg J. Rottenaicher*** **|** Technical University Munich, Germany
Insights into the mechanism of amyloid formation in systemic light chain amyloidosis

15:40 ***Manuel Hitzenberger*** **|** Technical University Munich, Germany
MD as a tool for the investigation of the mutation-driven fibrillation of antibody light chains

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16:00 **Break**

Chair Sheena E. Radford

16:30 ***Luis del Pozo-Yauner*** **|** University of South Alabama, USA
The Mechanism of Amyloid Fibril Formation in the Lambda-6 Immunoglobulin Light Chains

17:00 ***Marina Ramirez-Alvarado*** **|** Mayo Clinic, USA
Biophysics of Light Chains from Bacteria and Human Cells: Not all light chains are equal

17:30 ***Peter E. Wright*** **|** The Scripps Research Institute, USA
Kinetics and mechanism of transthyretin misfolding and aggregation

18:00 ***Marcus Fändrich*** | Ulm University, Germany
Concluding remarks, farewell

18:00 **End of the meeting**

Organization: Marcus Fändrich & Astrid Albiez