

Biological and Pharmaceutical Complex Fluids III: Protein Self-Assembly, Rheology and Interfacial Properties

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Editors:

Samiul Amin
Miguel Rodrigues
Paolo Arosio

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Monday, July 15, 2019

- 07:30 - 08:45 Breakfast buffet
- 08:45 - 09:00 Welcome from Conference Chairs
Paolo Arosio, Miguel Rodrigues
- 09:00 - 10:30 **Session 1: Protein-Protein Interactions**
Chair: Robin Curtis
- 09:00 - 09:30 Marco van de Weert, University of Copenhagen, Denmark
The challenge of formulating high concentration therapeutic peptides
- 09:30 - 10:00 Frank Schreiber, University of Tübingen, Germany
Tuning protein behavior by multivalent charges: Aggregation, diffusion, and adsorption
- 10:00 - 10:30 Olga Matsarskaia, University of Tübingen, Germany
Ion-specific effects for tuning the phase behavior of protein solutions
- 10:30 - 11:00 Coffee break
- 11:00 - 12:30 **Session 2: Protein Aggregation: Thermodynamics, Kinetics & Interactions**
Chair: Miguel Rodrigues
- 11:00 - 11:30 Peter Schurtenberger, Lund University, Sweden
A colloid approach to self-assembling antibodies
- 11:30 - 12:00 Komla AKO, LRP, France
Concept on self-assembly and structure of globular protein fluids
- 12:00 - 12:30 Anna Stradner, Lund University, Sweden
Arrest transitions in protein solutions – insight from combining scattering, microrheology, and computer simulations
- 13:00 - 14:30 Lunch
- 14:30 - 15:30 Optional tour of historic areas of Schloss Hernstein (led by Director Jan Soucek)
- 14:30 - 16:30 Networking / free time / *ad hoc* sessions
- 16:30 - 17:00 Afternoon coffee break
- 17:00 - 18:30 **Session 3: Protein Aggregation: Thermodynamics, Kinetics & Interactions**
Chair: Paolo Arosio
- 17:00 - 17:30 Jingtao Zhang, Merck, USA
Aggregation challenges in the formulation development of multi-dose peptide products
- 17:30 - 18:00 Vito Foderà, University of Copenhagen, Denmark
Linking protein-protein interactions to the diversity of amyloid-like aggregates
- 18:00 - 18:30 Richard Melien, Martin-Luther-Universität Halle-Wittenberg
Activation energies define kinetic (in)stabilities of therapeutic antibodies
- 18:30 - 19:00 Free time
- 19:00 - 21:30 Dinner followed by Social Hour

Tuesday, July 16, 2019

07:30 - 08:30 Breakfast buffet

Session 4: Protein Novel Applications

Chair: Deniz Gunes

08:30 - 09:00 Cait MacPhee, University of Edinburgh, UK
Bacterial surface layer proteins: a new class of 'smart' switchable surface-active proteins

09:00 - 09:30 Elke Scholten, Wageningen University, Netherlands
Protein aggregates as building blocks for oil structuring

09:30 - 10:00 Nikolai Denkov, Sofia University, Bulgaria
Protein-stabilized emulsions and nanoemulsions

10:00 - 10:30 Clément de Loubens, CNRS, France
Interfacial rheology of microcapsules and dynamics in flow

10:30 - 11:00 Coffee break

Session 5: Novel Characterization

Chair: Robin Curtis

11:00 - 11:30 Paolo Arosio, ETHZ, Switzerland
Microfluidic and nanotechnology based assays for the development of safe biopharmaceuticals

11:30 - 12:00 Hristo Svilenov, LMU München, Germany
Biophysical characterization approaches to aid the selection of protein formulations by predicting their physical stability during long-term storage

12:00 - 12:30 Sarah Hedberg, Imperial College London, UK
Predicting the stability of biotherapeutics in formulation

12:30 - 13:00 Luke Clifton, Rutherford Appleton Laboratory, UK
Neutron scattering: A versatile tool for probing complex solutions and surfaces

13:00 - 14:30 Lunch

14:30 - 16:30 Tour of Pecher (resin) Museum in Hernstein – recognized by UNESCO as an “intangible cultural heritage” (short walk to the museum; tour in English)

16:30 - 17:00 Afternoon coffee break

Session 6: Novel Characterization

Chair: Peter Schurtenburger

17:00 - 17:30 Hanna Jankevics, Malvern Panalytical Ltd, UK
Key stability attributes used from target protein development to process optimization

17:30 - 18:00 Jeffrey Bodycomb, Horiba, USA
Multi-laser nanoparticle tracking analysis (NTA): Evaluating protein aggregation

18:00 - 18:30 Lorenzo Gentiluomo, Wyatt Technology Europe, Germany
The development of therapeutic proteins can be hindered by poor decision-making strategies in the early stage

Tuesday, July 16, 2018 (continued)

- 18:30 - 19:00 Dilip Sethi, Imperial College London, UK
A novel technique to characterize the surface hydrophobicity of proteins using inverse liquid chromatography
- 19:00 - 21:30 Dinner followed by Social Hour

Wednesday, July 17, 2019

- 07:30 - 09:00 Breakfast buffet
- 09:00 - 10:30 **Session 7: Protein Rheology and Microrheology in Bulk**
Chair: Anna Stradner
- 09:00 - 09:30 Daniel Molnar, Boehringer Ingelheim, Germany
Possible obstacles and pitfalls during biopharmaceutical processing of high concentration liquid formulations (HCLF)
- 09:30 - 10:00 Christoph Grapentin, Lonza, Switzerland
Predicting viscosity of high concentration Mab formulations based on data from high throughput characterization methods
- 10:00 - 10:30 Josef Hartl, Boehringer Ingelheim, Germany
Multiple interactions and complex viscosity: The impact of frequency rheology for the development of high concentration protein formulations
- 10:30 - 11:00 Coffee break
- 11:00 - 12:30 **Session 8: Protein Structuring and Rheology at Interfaces**
Chair: Paolo Arosio
- 11:00 - 11:30 Inas Elbially, LMU Muenchen, Germany
Compression and protein-protein interactions as triggers for aggregation of monoclonal antibodies at interfaces
- 11:30 - 12:00 Ian Shieh, Genentech, USA
Predicting, characterizing, and controlling interfacial antibody adsorption and aggregation
- 12:00 - 12:30 Joel Kaar, University of Colorado, USA
Understanding the stabilization of proteins in heterogeneous surface environments
- 12:30 - 14:30 Lunch
- 14:30 - 16:30 Networking / free time / *ad hoc* sessions
- 16:30 - 17:00 Afternoon coffee break
- 17:00 - 19:00 **Session 9: Processing Impacts and Characterization**
Chair: Michael Marlow
- 17:00 - 17:30 Karoline Bechtold-Peters, Novartis, Switzerland
Insights into freeze-thaw processes for therapeutic protein formulations
- 17:30 - 18:00 Miguel Rodrigues, University of Lisbon, Portugal
A perspective on cold processing of proteins.
- 18:00 - 18:30 Vitor Geraldés, University of Lisbon, Portugal
Implications of porous-flow in the design of freeze-thaw systems for biopharmaceuticals and rational scale-down methodology
- 18:30 - 19:00 Eduardo Melo, University of Algarve, Portugal
Stability of protein formulations at sub-zero temperatures by isochoric cooling
- 19:00 - 21:00 Conference Banquet followed by Social Hour

Thursday, July 18, 2019

07:30 - 09:00	Breakfast buffet
09:00 - 11:00	<u>Session 10: Protein Aggregation, Interaction with Surfactants & Bionanotechnology</u> Chair: Jintao Zheng
09:00 - 09:30	Hannah Kientz, Hoffmann-La Roche, Switzerland <i>Evaluation of alternative surfactants as stabilizers for therapeutical protein formulations</i>
09:30 - 10:00	Mridul Sarker, Nanyang Technological University, Singapore <i>Structural integrity of protein nanocage at liquid-liquid Interface</i>
10:00 – 10:30	General Discussion
10:30 - 11:30	Coffee break
11:30 – 12:00	Conference wrap-up and future plans
12:00 - 13:30	Lunch (Note: Boxed lunches will be available by prior request on sign-up list)
13:30	Departures