

**BENZON SYMPOSIUM No. 56**  
**FUNCTIONAL AND PATHOGENIC PROTEIN**  
**AGGREGATION**

**AUGUST 24 – 27, 2009, COPENHAGEN, DENMARK**

*Organizing committee:*

*Daniel Otzen (Aarhus), Poul Henning Jensen (Aarhus), Sven Frøkjær (Copenhagen) &  
Niels Borregaard (Copenhagen)*

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**Scientific program - MONDAY, August 24, 2009**

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**Daniel OTZEN:** Welcome and Opening Comments

*INTRODUCTORY OPENING LECTURE*

*Chair: Poul Henning Jensen*

**Colin L. MASTERS:** Amyloid Diseases - an Historic Perspective from Crude Mass to Soluble Protofibrils

*Session I: AMYLOIDS AND THEIR PRECURSORS - I*

*Chair: Daniel Otzen*

**David EISENBERG:** Fundamental Questions about Amyloids and Prions, Fibril-forming Proteins Associated with Degenerative Diseases

**Louise SERPELL:** The Architecture of the Cross-beta Fold for Amyloid

**Michele VENDRUSCOLO:** Predicting Protein Behaviour from Physico-chemical Principles

*Session II: AMYLOIDS AND THEIR PRECURSORS - II*

*Chair: David Eisenberg*

**Alexander BUELL:** Quartz Crystal Micro-balances (QCM) for Accurate Kinetic Measurements of Amyloid Growth (*Oral poster*)

**Vinod SUBRAMANIAM:** Lipid Binding Properties of Oligomeric  $\alpha$ -Synuclein (*Oral poster*)

**Daniel OTZEN:** Towards a Full Description of the Polymorphic Fibrillation of Glucagon

**Peter LANSBURY:** A Therapeutic Approach to Protein Aggregation Diseases

**Bente VESTERGAARD:** Following Oligomer and Amyloid Formation by Small Angle X-ray Scattering

*Posters: Authors present posters Nos. I-1 to I-26.*

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**Scientific program - TUESDAY, August 25, 2009**

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*Session III: AMYLOID DISEASES - CELLULAR RESPONSES TO PROTEIN AGGREGATES*

*Chair: Peter Reinhart*

**Ron KOPITO:** Membrane Penetration and Prion-Like Propagation of Polyglutamine Amyloids

**F. Ulrich HARTL:** Role of Molecular Chaperones in Neurodegenerative Misfolding Disease

**Richard I. MORIMOTO:** The Stress of Misfolded Proteins in Neurodegenerative Diseases and Ageing

**Jeffery KELLY:** Proteostasis

**Della DAVID:** Protein Aggregation as an Inherent Part of Ageing (*Oral poster*)

*SESSION IV: AMYLOID DISEASES OF THE PERIPHERAL AND CENTRAL NERVOUS SYSTEM*

*Chair: Rick Morimoto*

**Maria João SARAIVA:** Role of the Heat Shock Response in Protein Misfolding Disorders of Extracellular Deposition

**Jesper Søndergaard PEDERSEN:** *C. Elegans* Models for Familial Danish and British Dementias (*Oral poster*)

**Louise JENSEN:** Characterization of Novel Genes Found to Accelerate Amyloid-beta Toxicity in a *Caenorhabditis Elegans* Model for Alzheimer's Disease (*Oral poster*)

**Joost SCHYMKOWITZ:** Lipids Revert Inert Abeta Amyloid Fibrils to Neurotoxic Protofibrils that Affect Learning in Mice (*Oral poster*)

**Ludmilla MOROZOVA-ROCHE:** Insights into Mechanisms of Amyloid Formation-Disaggregation: Insulin Amyloid Lability and Inflammation-Related Amyloidosis in Aging Prostate (*Oral poster*)

**Roland BRANDT:** Tauopathy Models: From Cells to Animals

**Dominic M. WALSH:** SDS-stable Dimers of the Amyloid  $\beta$ -protein ( $A\beta$ ) are Potent Synaptotoxins

*Posters: Authors present posters Nos. II-1 to II-26.*

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**Scientific program - WEDNESDAY, August 26, 2009**

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*Session V: AMYLOID DISEASES OF THE CENTRAL NERVOUS SYSTEM*

*Chair: Anne Bertolotti*

**Eliezer MASLIAH:** Synapse Pathology and Therapeutic Strategies in Synucleinopathies

**Poul Henning JENSEN:** Pathways in Alpha-synuclein Aggregate Toxicity

**Tiago F. OUTEIRO:** Modifying Alpha-synuclein Aggregation in Living Cells

**Patrick BRUNDIN:** Is Protein Misfolding Pathology Propagated from one Neuron to Another in the Parkinson's Disease Brain? (*Oral poster*)

**Marina ROMERO-RAMOS:** C-Truncated Alpha-Synuclein Triggers Toxicity of Full Length Alpha-Synuclein *in vivo* (*Oral poster*)

*Session VI: THERAPEUTIC APPROACHES IN PROTEIN MISFOLDING*

*Chair: Colin Masters*

**Anne BERTOLOTTI:** Misfolding of Proteins with a Polyglutamine Expansion is Facilitated by Proteasomal Unfoldases

**Robert HNASKO:** Intracerebral Inoculation of Prion-Infected Brain Homogenate with a Beta-Sheet Peptide (RADA16) Disrupts Prion Accumulation and Extends Hamster Survival

*(Oral poster)*

**Jan BIESCHKE:** Direct EGCG-induced Remodeling of Preformed Beta-sheet Rich Amyloid Fibrils Reduces Toxicity (*Oral poster*)

**Christofer LENDEL:** Dissecting the Mechanisms of Non-Specific Inhibitors of Protein Aggregation (*Oral poster*)

**Erich E. WANKER:** Redirecting Amyloid Formation Pathways with Small Molecules

**Peter REINHART:** Therapeutic Strategies for Inhibiting the Generation or Enhancing the Clearance of Protein Aggregates for the Treatment of Neurodegenerative Diseases

*Posters: Authors present posters Nos. III-1 to III-21.*

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***Scientific program - THURSDAY, August 27, 2009***

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*Session VII: FUNCTIONAL AMYLOID & NANOTECHNOLOGICAL AMYLOID - I*

*Chair: Shuguang Zhang*

**Matthew R. CHAPMAN:** Bacterial Amyloid Biogenesis is Coordinated by Directed Nucleation and Polymerization

**Per Halkjær NIELSEN:** Nature and Prevalence of Bacterial Amyloid

**Martijn GEBBINK:** Amyloid and Haemostasis

**Toumas KNOWLES:** Material Properties of Amyloid Fibrils

*Session VIII: FUNCTIONAL AMYLOID & NANOTECHNOLOGICAL AMYLOID -II*

*Chair: Per Halkjær Nielsen*

**Morten Simonsen DUEHOLM:** Novel Class of Functional Amyloids Discovered in *Pseudomonas* (*Oral poster*)

**Simon ALBERTI:** Discovery of a Large Repertoire of Prions in Yeast: A System for Heritable Phenotypic Diversity (*Oral poster*)

**Christoph MEIER:** Development and Investigation of Novel Nanomaterials Based on Amyloid Fibrils (*Oral poster*)

**Thomas SCHEIBEL:** Protein Engineering to Employ Amyloid Fibrils as New Materials

**Shuguang ZHANG:** Dynamics Behaviors of Designer Self-Assembling Peptides

**Closing comments**

*Posters: Authors present posters Nos. IV-1 to IV-17.*