

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)*

Scientific program - MONDAY, August 24, 2009

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 α -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

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 β -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

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

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.