

# International Symposium on Protein Misfolding Diseases

July 31<sup>th</sup> – August 3<sup>rd</sup>, 2017, University of Catania, Catania, Italy

## Program:

<b>Mon Jul 31<sup>st</sup></b>	<b>Tue Aug 1<sup>st</sup></b>	<b>Wed Aug 2<sup>nd</sup></b>	<b>Thu Aug 3<sup>rd</sup></b>
AM Session I: <a href="#"><i>Aggregation and Amyloids</i></a> 9:00-12:30	AM Session II: <a href="#"><i>in Silico Amyloids</i></a> 9:00-12:30	AM Session III: <a href="#"><i>Membrane-Assisted Amyloids</i></a> 9:00-12:05	AM Session IV: <a href="#"><i>In Cell Amyloids Amyloid Inhibition</i></a> 9:00-12:35
PM Session I: <a href="#"><i>Protein Misfolding in Aging Diseases</i></a> 14:00-17:00	Free time	PM Session III: <a href="#"><i>Amyloid Intermediates</i></a> 14:00-17:00	Symposium ends
Poster Session I 17:30-18:30		Poster Session II 17:30-18:30	

All sessions will be in: Aula Magna of Villa San Saverio, "[Scuola Superiore di Catania](#)" located in: via Valdisavoia, 9-95123 Catania.

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## Monday, July 31<sup>th</sup>

**8:30-9:00 Registration and Coffee**

### **Morning Session I: Aggregation and Amyloids**

**Chairs: A. Ramamoorthy; O. Gursky**

9:00-9:05 Opening Remarks

9:05-9:30 Metabolite aggregation: Extension of the generic amyloid hypothesis

**Ehud Gazit**, *Blavatnik Center for Drug Discovery, Israel*

9:30-9:55 Unlocking the Mysteries of Amyloid Diseases with Macrocyclic beta-Sheet Peptides. **James Nowick**, *University of California, Irvine, USA*

9:55-10:20 Dynamics of Beta-Amyloid Aggregation.  
**Stephen Meredith**, *University of Chicago, USA*

10:20-10:45 Amyloid structures: from the origin to the end of life.  
**Roland Riek**, *ETH, Zurich, Switzerland*

**10:45-11:15 Coffee Break**

11:15-11:40 The structure of amyloid-beta  
**Beat Meier**, *ETH, Zurich, Switzerland*

11:40-12:05 The Structure and Dynamics of Mutated Amyloid Beta Fibrils  
**Daniel Huster**, *Universität Leipzig, Germany*

12:05-12:15 Targeting Amyloid Diseases with Self-assembled Cyclic D,L- $\alpha$ -Peptides  
**Shai Rahimipour**, *Bar-Ilan University, Israel*

12:20-12:30 Mechanisms of Cystatin C Oligomer and Amyloid Formation and Cystatin C:Beta-Amyloid Interactions  
**Regina Murphy**, *University of Wisconsin, Madison*

**12:30-14:00 Lunch Break**

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## Monday, July 31<sup>th</sup>

### **Afternoon Session I: Protein Misfolding in Aging Diseases**

**Chairs: E. Gazit; E. Dufourc**

14:00-14:25 Studies of protein folding, misfolding, and unfolding by rapid pressure jump NMR **Adrian Bax** *NIH, USA*

14:25-14:50 Modulation of the Fibrillogenesis of Amyloidogenic Peptides by Macromolecular Crowding, Osmolytes and Lipid Interfaces  
**Roland Winter**, *Dortmund University, Germany*

14:50-15:15 Thermodynamics of protein misfolding and aggregation.  
**Young-Ho Lee**, *Osaka University, Japan*

**15:15-15:45 Coffee Break**

15:45-16:10 IDPs and fibrils monitored by solution NMRD and solid state NMR  
**Claudio Luchinat**, *University of Florence, Italy*

16:10-16:35 Structural mechanisms in Aβ generation and aggregation.  
**Chunyu Wang**, *Rensselaer Polytechnic Institute, USA*

16:35-17:00 Serum Amyloid A acts as an IDP hub and a molecular mop: An ancient protein with novel functions  
**Olga Gursky**, *Boston University, USA*

**17:30-18:30 Poster Session I; Chair: D. Milardi**

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## Tuesday, August 1<sup>st</sup>

### **Morning Session II: *in Silico* Amyloids**

Chair: **G. Melacini**; **F. Fogolari**

- 9:00-9:05      Opening Remarks
- 9:05-9:30      Simulations of prion fragments oligomerization: decomposing nucleation core assemblies.  
**Franca Fraternali**, *King's College London, UK*
- 9:30-9:55      Insight into the self-assembly of amyloids and cross-seeding aggregation between amyloidogenic proteins  
**Yifat Miller**, *Ben-Gurion University, Israel*
- 9:55-10:20     Modeling the aggregation of Alzheimer's Amyloid-beta into oligomers.  
**Birgit Strodel**, *Jülich Research Centre, Germany*
- 10:20-10:45    Molecular dynamics simulations of b2-microglobulin interaction with hydrophobic surfaces.  
**Federico Fogolari**, *University of Udine, Italy*
- 10:45-11:15    Coffee Break**
- 11:15-11:40    Assessing intrinsic protein disorder via computational modelling.  
**Mikko Karttunen**, *Eindhoven University of Technology, Netherlands*
- 11:40-11:50    Nanoscale Infrared Spectroscopy: A New Emerging Tool to Investigate Proteins Misfolding and Aggregation  
**Francesco S. Ruggeri**, *U. of Cambridge, UK*
- 11:55-12:05    Realizing being a carrier of genetic CJD and taking an active role to support research to find a solution – A personal story  
**Alice Anane**, *CJD Foundation, Israel*
- 12:05-12:30    The role of a disordered signaling protein tail at the membrane: The Ras example  
**Ruth Nussinov**, *NCI, USA*

### **- No afternoon session -**

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## Wednesday, August 2<sup>nd</sup>

### **Morning Session III: Membrane-Assisted Amyloids**

Chair: **B. Reif**; **G. Veglia**

- 9:00-9:05      Opening Remarks
- 9:05-9:30      Amyloid Aggregation at the Membrane Interface: Challenges and High-Resolution Insights  
**Ayvalusamy Ramamoorthy**, *University of Michigan, USA*
- 9:30-9:55      Regulated folding-unfolding of phospholamban cytoplasmic domain controls Ca<sup>2+</sup>-ATPase function.  
**Gianluigi Veglia**, *University of Minnesota, USA*
- 9:55-10:20     Formation of toxic fibrils by amyloid beta-protein mediated by GM1 ganglioside on neuronal membranes.  
**Katsumi Matsuzaki**, *Kyoto University, Japan*
- 10:20-10:45    Membrane Interactions and Amyloid Formation of  $\alpha$ -Synuclein  
**Jennifer Lee**, *NIH, USA*
- 10:45-11:15    Coffee Break**
- 11:15-11:40    Membrane Crossing by amphipathic peptides: an aggregation/molecular electroporation mechanism.  
**Erick Dufourc**, *Bordeaux University, France*
- 11:40-12:05    Membrane interactions of bacterial amyloids: cell-cell communication, biofilm formation, and toxicity  
**Raz Jelinek**, *Ben-Gurion University, Israel*
- 12:05-14:00    Lunch break**

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## Wednesday, August 2<sup>nd</sup>

### **Afternoon Session III: Amyloid Intermediates**

Chair: **R. Jelinek**; **C. Airoidi**

14:00-14:25 Soluble protein complexes investigated by MAS solid-state NMR

**Bernd Reif**, *Technical University of Munich, Germany*

14:25-14:50 Programmed cell death-inducing amyloids investigated by solid-state NMR.

**Antoine Loquet**, *CNRS, Bordeaux, France*

14:50-15:15 The structural and biological determinants of protein oligomer toxicity.

**Fabrizio Chiti**, *University of Florence, Italy*

### **15:15-15:45 Coffee Break**

15:45-16:10 Ab peptide oligomerization: the role of interactions with N-terminal truncated alloforms and prion protein

**Laura Ragona**, *CNR, Milan, Italy*

16:10-16:35 “Rams’ Surprise” event ...

16:35-17:00 Protein Misfolding and Oligomerization Followed by NMR: the example of the A-beta(1-40) peptide.

**Moreno Lelli**, *CERM, Florence, Italy*

### **17:30-18:30 Poster Session II; Chair: D. Milardi**

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## Thursday, August 3<sup>rd</sup>

### **Morning Session IVa: *In Cell* Amyloids**

Chair: **Y. Miller**

- 9:00-9:05      Opening Remarks
- 9:05-9:30      NMR spectroscopy and more in cellular and neurodegeneration and protection  
**Christian Griesinger**, *Max Planck Institute, Göttingen, Germany*
- 9:30-9:55      Amyloid fibril polymorphism in vitro and in vivo  
**Marcus Fändrich**, *Ulm University, Germany*
- 9:55-10:20     Pancreatic islet and diabetes mellitus: an overview.  
**Salvatore Piro**, *University of Catania*
- 10:20-10:45    Proteasome Malfunction, Aging, and Amylin Misfolding: A Dangerous  
Pancreatic Trio **Aleksandar Jeremic**, *George Washington University*

**10:45-11:15    Coffee Break**

### **Morning Session IVb: Amyloid Inhibition**

Chair: **C. La Rosa**

- 11:15-11:40    Inhibitors of paradigmatic amyloidogens: recent results for beta2-  
microglobulin. **Rino Esposito**, *University of Udine, Italy*
- 11:40-12:05    Amyloid Inhibition as Mapped by Solution NMR  
**Giuseppe Melacini**, *McMaster University, Canada*
- 12:05-12:30    NMR-based identification of new ligands and inhibitors of amyloid oligomers  
**Cristina Airoidi**, *University of Milan-Bicocca, Italy*
- 12:30-12:35    **Closing remarks**

**- End of symposium -**

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