Program

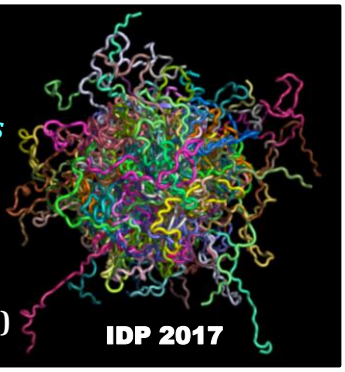
International Conference on

Intrinsically Disordered Proteins: *Forms, Functions and Diseases*

Venue: Auditorium, Lecture Hall Complex
Indian Institute of Science Education and Research (IISER) Mohali

December 9-12, 2017

Organizers: **Samrat Mukhopadhyay (IISER Mohali, India)**
Elizabeth Komives (University of California San Diego, USA)



December 9, 2017 (Saturday)

9:00 am	Welcome and Opening Remarks by the Organizers
	Session 1: **Keynote Session** **Chair: P. Balaram** (Indian Institute of Science, Bangalore, India)
9:15 am	**Christopher Dobson** (University of Cambridge, UK) ***EMBO Keynote Lecture*** The Amyloid State of Proteins and its Significance in Biology and Medicine
	Session 2: **Disorders, Functions and Dysfunctions** **Chair: Elizabeth Komives** (University of California San Diego, USA)
10:00 am	**Jane Dyson** (Scripps Research Institute, La Jolla, USA) Disorder Rules: How Cells and Viruses use Disordered Proteins
10:30 am	**Richard Kriwacki** (St. Jude Children's Hospital, Memphis, USA) Exploring the Diverse Conformations and Biological Functions of IDPs
11:00 am	**Vladimir Uversky** (University of South Florida, Tampa, Florida, USA) Unusual Biophysics and Strange Biology of Intrinsic Disorder
11:30 am	Group Photo and Coffee
	Session 3: **Phase Separation and Membrane-less Organelles** **Chair: Peter Wright** (Scripps Research Institute, La Jolla, USA)
12:00 am	**Rohit Pappu** (Washington University in St. Louis, USA) Sequence Determinants of Phase Behavior in Multivalent Proteins
12:30 pm	**Peter Tompa** (VIB Structural Biology Research Center, Brussels, Belgium) Structural Disorder Promotes Phase Separation of C9orf72 Dipeptide Repeats in ALS
1:00 pm	Lunch
2:00 pm	Poster and Tea
	Session 4: **Amyloids in Disease and Function** **Chair: Christopher Dobson** (University of Cambridge, UK)
4:00 pm	**Jayant Udgaonkar** (NCBS Bangalore and IISER Pune, India) Mechanism of Prion-like Conformational Change by the Tau Protein
4:30 pm	**Matthew Chapman** (University of Michigan, Ann Arbor, USA) Discouraging Amyloid Formation with Beta-Rich Proteins
5:00 pm	**Daniel Otzen** (Aarhus University, Denmark) Self-Organizing Amyloid in Bacteria
	Session 5: **Special Evening Session** **Chair: Jayant Udgaonkar** (NCBS Bangalore and IISER Pune, India)
5:45 pm	**P. Balaram** (Indian Institute of Science, Bangalore, India) G. N. Ramachandran and the Origins of the Field of Polypeptide and Protein Conformations
6:30 pm	Dinner

December 10, 2017 (Sunday)

Session 6: **Disorder-to-Function Relationships** **Chair: Peter Tompa** (VIB Structural Biology Research Center, Brussels, Belgium)	
9:00 am	**Peter Wright** (Scripps Research Institute, La Jolla, USA) Allosteric Regulation of Cellular Signaling Pathways by Intrinsically Disordered Proteins
9:30 am	**Elizabeth Komives** (University of California San Diego, USA) The Role of Intrinsic Disorder in NFκB Signaling
10:00 am	**Timothy Lohman** (Washington University in St. Louis, USA) Glutamate Promotes SSB Protein-Protein Interactions via Intrinsically Disordered Regions
10:30 am	**Paul Gooley** (University of Melbourne, Australia) The Complex Binding Mode of Relaxin for its Receptor RXFP1
11:00 am	Coffee
Session 7: **Coupled Folding, Binding and Assembly** **Chair: Jane Dyson** (Scripps Research Institute, La Jolla, USA)	
11:30 pm	**Perdita Barran** (University of Manchester, UK) Using Mass Spectrometry to examine Disordered Proteins – The Perfect Tool to Report on Self Solvation and Complex Formation?
12:00 pm	**Raffaele Mezzenga** (ETH Zürich, Switzerland) Amyloid Crystals Occupy the Absolute Minimum in the Protein Folding Energy Landscape
Session 8: **Young Researcher Session - I (Selected from Submitted Abstracts)** **Chair: Thomas Kiefhaber** (Martin-Luther-Universität Halle-Wittenberg, Germany)	
12:30 pm	**Shana Elbaum-Garfinkle** (Princeton University, USA) Phase Behavior of Disordered Proteins Underlying Low Density and High Permeability of Liquid Organelles
12:45 pm	**Abhinav Nath** (University of Washington, Seattle, USA) Understanding How Chaperones, Polyanions, and Novel Small Molecules Modulate Tau's Aggregation Pathway
1:00 pm	Lunch
2:00 pm	Poster and Tea
Session 9: **Conformational Plasticity and Fuzziness** **Chair: Richard Kriwacki** (St. Jude Children's Hospital, Memphis, USA)	
4:00 pm	**Monika Fuxreiter** (University of Debrecen, Hungary) Fuzziness in Protein Adaptation
4:30 pm	**Edward Lemke** (EMBL Heidelberg, Germany) Decoding Molecular Plasticity in the Dark Proteome of the Nucleocytoplasmic Transport Machinery
Session 10: **Amyloidogenic IDPs: Order in Disorder** **Chair: Joan-Emma Shea** (University of California Santa Barbara, USA)	
5:00 pm	**Sudipta Maiti** (Tata Institute of Fundamental Research, Mumbai, India) Designing Ligands for Structure-less Proteins
5:30 pm	**Samrat Mukhopadhyay** (IISER Mohali, India) Biological Water in Amyloidogenic IDPs
6:30 pm	Conference Dinner

December 11, 2017 (Monday)

Session 11: **Amyloid Conversion and Toxicity** **Chair: Matthew Chapman** (University of Michigan, Ann Arbor, USA)	
9:00 am	**Joan-Emma Shea** (University of California Santa Barbara, USA) Aggregation of the Tau Protein: Insights from Atomistic and Mesoscale Simulations
9:30 am	**Jerson Silva** (Federal University of Rio de Janeiro, Brazil) Targeting the Prion-Like Aggregation of Mutant p53 Against Cancer
10:00 am	**Per Hammarström** (Linköping University, Sweden) Polymorphic Influence on Amyloid Toxicity and Replication
10:30 am	**Samir Maji** (Indian Institute of Technology, Bombay, Mumbai, India) Role of p53 Amyloid Formation in Cancer
11:00 am	Coffee
Session 12: **Dynamics and Disorder** **Chair: Monika Fuxreiter** (University of Debrecen, Hungary)	
11:30 am	**Payel Das** (IBM Watson Research Center, New York, USA) Structure-Function Paradigm of Disordered Peptides Through the Computational Microscope
12:00 pm	**Parbati Biswas** (University of Delhi, India) Understanding Intrinsic Disorder in Proteins
12:30 pm	**Neelanjana Sengupta** (IISER Kolkata, India) Oligomeric Assembly of the Alzheimer's Amyloid β Peptide under Perturbing Conditions: A Computer Simulation Approach
1:00 pm	Lunch
2:00 pm	Poster and Tea
Session 13: **Young Researcher Session - II (Selected from Submitted Abstracts)** **Chairs: Sudipta Maiti** (Tata Institute of Fundamental Research, Mumbai, India) **Purnananda Guptasarma** (IISER Mohali, India)	
4:00 pm	**Anupam K. Chakravarty** (Stanford University California, USA) Intrinsically Disordered Regions of a Conserved RNA Binding Protein Drive Self-Templating: A New Paradigm in Gene Regulation?
4:15 pm	**Priyanka Joshi** (University of Cambridge, UK) A Fragment-Based Strategy of Creating Small-Molecule Libraries to Target the Aggregation of Intrinsically Disordered Proteins: An Update
4:30 pm	**Neha Jain** (University of Michigan, Ann Arbor, USA) Cross-talk Between Human and Bacterial Amyloids and its Consequence in Neurodegenerative Diseases
4:45 pm	**Suman De** (University of Cambridge, UK) A Quantitative Assay to Measure Protein Aggregate Induced Toxicity
5:00 pm	**Rajanish Giri** (Indian Institute of Technology, Mandi, India) Molecular Recognition Features in the Dark Side of Zika Virus Proteome
5:15 pm	**Ashutosh Kumar** (Indian Institute of Technology Bombay, Mumbai, India) Histone 4 Facilitates the Conformational Flexibility of the N-terminus of CENP-ACse4
5:30 pm	Technical Presentations Malvern Horiba
6:30 pm	Dinner

December 12, 2017 (Tuesday)

Session 14: **Dynamics, Interconversion and Heterogeneity** **Chair: Rohit Pappu** (Washington University in St. Louis, USA)	
9:00 am	**Thomas Kiefhaber** (Martin-Luther-Universität Halle-Wittenberg, Germany) Local and Long-Range Conformational Dynamics in the Unfolded State of Proteins and IDPs
9:30 am	**Gautam Basu** (Bose Institute, Kolkata, India) Insights into Slowly Inter-converting IDP Ensemble from Studies on Short Synthetic Peptides Containing Proline
10:00 am	**Hue Sun Chan** (University of Toronto, Canada) Conformational Heterogeneity and Theories of Sequence-Specific Liquid-Liquid Phase Coexistence of Intrinsically Disordered Proteins
10:30 am	**Athi Naganathan** (Indian Institute of Technology Madras, Chennai, India) Conditional Order in a Disordered Protein: A Continuum of Structural Order and Compactness Driven by Electrostatics
11:00 am	Coffee
Session 15: **Disorder and Lipid-Protein Interactions** **Chair: Daniel Otzen** (Aarhus University, Denmark)	
11:30 am	**Frances Separovic** (University of Melbourne, Australia) Membrane Interactions Affect Structure of Amyloid Peptides
12:00 pm	**Amitabha Chattopadhyay** (Centre for Cellular & Molecular Biology, Hyderabad) Interaction of a Partially Disordered Protein with Membrane Lipids and Fatty Acids
12:30 pm	**Johnny Habchi** (University of Cambridge, UK) Cholesterol Catalyses Aβ42 Aggregation Through a Heterogeneous Nucleation Pathway in the Presence of Lipid Membranes
1:00 pm	Lunch
Session 16: **Folding Disorder: From Test Tubes to Cells** **Chairs: Amitabha Chattopadhyay** (Centre for Cellular & Molecular Biology, Hyderabad, India) **Jerson Silva** (Federal University of Rio de Janeiro, Brazil)	
2:15 pm	**Rajiv Bhat** (Jawaharlal Nehru University, New Delhi, India) Comparative Analysis of the Conformation, Aggregation, Interaction and Fibrillation of Human α, β, and γ Synuclein Proteins
2:45 pm	**Purnananda Guptasarma** (IISER Mohali, India) Intrinsic Blue Fluorescence in Ordered and Disordered Proteins
3:15 pm	**Yann Gambin** (University of New South Wales, Sydney, Australia) Mapping Co-aggregation Cascades in the Formation of Lewy Bodies
3:45 pm	**Krishnananda Chattopadhyay** (Indian Institute of Chemical Biology, Kolkata, India) Small Molecule Based Investigation on Different Stages of α-Synuclein Aggregation
4:15 pm	Tea
4:30 pm	**Patrick D'Silva** (Indian Institute of Science, Bangalore, India) Uncovering the Role of mtHSP70 Chaperone Network in the Maintenance of Mitochondrial Quality Control: Relevance in the Progression of Parkinson's Disease
5:00 pm	**Deepak Sharma** (Institute of Microbial Technology, Chandigarh, India) Autophagy and not Classical Chaperoning Function of the Yeast Hsp70 Protects Cell From α-Synuclein Toxicity
5:30 pm	Poster Awards and Concluding Remarks
6:30 pm	Dinner