

Meeting Organizer:

Patricia L. Clark, *University of Notre Dame*

Program Committee:

Connie Jeffery, *University of Illinois at Chicago*

Lisa Lapidus, *Michigan State University*

Conference Venue:

Jordan Hall of Science
University of Notre Dame
574-631-6456

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Department of Chemistry & Biochemistry, University of Notre Dame

College of Science, University of Notre Dame

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17th Midwest Conference on Protein Folding, Assembly & Molecular Motions

April 27, 2024

Jordan Hall of Science – University of Notre Dame

8:15 – 8:55 *Coffee, juice, and pastries*

8:55 – 9:00 *Opening Remarks* – Patricia L. Clark

Opening Plenary Speaker

9:00 – 9:30 Insights into the chaperone mechanism of Grp94

Andrea Kravats

Department of Chemistry and Biochemistry, Miami University, Oxford, OH 45056

Disorder, Aggregates & Condensates

Chair: Kratika Singhal (Mesecar Lab, Purdue University)

9:30 – 9:50 Effects of hydrophobic sequence patterns on disordered protein conformational ensembles

Cedrick D. Mukinay, Michael C. Baxa, Tobin R. Sosnick & Patricia L. Clark

Department of Chemistry & Biochemistry, University of Notre Dame, Notre Dame, IN 46556

9:50 – 10:10 Insulin's Foldability Hinges on a Weak Long-Range Hydrogen Bond Broken in a Monogenic Diabetes Syndrome Associated with Toxic Protein Misfolding

Balamurugan Dhayalan, Yanwu Yang, Yen-Shan Chen, Nischay Rege, Michal Avital-Shmilovici, Leena Haataja, Andreas Ehnbohm, Stephen B. Kent, Peter Arvan, and Michael A. Weiss

Indiana University School of Medicine, Indianapolis, IN 46202

10:10 – 10:30 Molecular and Cellular Roadmap of Condensate Formation

Bikash R. Sahoo & James C.A. Bardwell

Howard Hughes Medical Institute, University of Michigan, Ann Arbor, MI-48109, USA

10:30 – 10:45 *Coffee Break*

10:45 – 11:45 Community Hour

Panel discussion on practical approaches to nurturing diversity, equity & inclusion.

Panelists: Heedeok Hong (Michigan State), Seema Mattoo (Purdue), Brittany Morgan (Notre Dame)

Protein Sequence Evolution

Chair: Saad Raza (Vermaas Lab, Michigan State University)

11:45 – 12:05 A comparison of structural and thermodynamic stability of phosphoglycerate kinase from mesophiles to extremophiles.
Sepehr Alaeen, Andrew Maytin, Mayank Boob, Taras Pogorelov, Martin Gruebele
Center for Biophysics and Quantitative Biology, University of Illinois Urbana-Champaign, Urbana, IL, USA

12:05 – 12:25 Investigation of the protein sequence and structural determinants of aggregation resistance.
Cydney M. Martell & Gabriel J. Rocklin
Department of Pharmacology, Northwestern University Feinberg School of Medicine, Chicago, IL 60611

12:25 – 1:40 *Lunch*

1:40 – 2:55 *Poster Session*

Protein Targeting & Secretion

Chair: Shukun Wang (Change Lab, Purdue University)

2:55 – 3:15 Structural Studies of the Yeast Pretargeting Complex
Diego S. Granados-Villanueva & Kelly H. Kim
Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI 48824

3:15 – 3:35 Directed-Evolution Approach to Nascent-Protein Folding and Aggregation Based on Tuning the Size of the Ribosomal Exit Tunnel
Jinoh Jang, Sofia K. Merrick, and Silvia Cavagnero
University of Wisconsin, Madison, Madison, WI 53705

3:35 – 3:55 A Brucella secreted effector that manipulates the host unfolded protein response.
Ben G. Watson, April Y. Tsai, Nick Noinaj, Renee Tsois and Seema Mattoo
Department of Biological Sciences, Purdue University, 610 Purdue Mall, West Lafayette, IN 47907

3:55 – 4:10 *Coffee Break*

Transmembrane Protein Folding & Assembly

Chair: Andi Rosner (Drew Lab, University of Illinois at Chicago)

4:10 – 4:30 Structural insights into the dynamic interplay between BAM and SurA during OMP biogenesis.
Michelle Bush, Runrun Wu, Nicholas Noinaj

4:30 – 4:50 Department of Biological Sciences, Purdue University, West Lafayette, IN
Influence of Calnexin on the Pharmacological Profile of Cystic Fibrosis
Transmembrane Conductance Regulator Variants
Austin Tedman and Jonathan Schleich
Department of Chemistry, Purdue University, West Lafayette, IN 47907

Closing Plenary Speaker

4:50 – 5:20 Unraveling the mystery of IFN λ 4 and its signaling complex using computation,
protein engineering, and cryoEM
Juan L. Mendoza
Howard Hughes Medical Institute and Pritzker School of Molecular Engineering, The University of
Chicago, Chicago, IL

5:20 – 5:25 *Closing Remarks – Connie Jeffery*

5:25 – 6:15 *Closing Reception*