

**27th Annual Midwest Stress Response and Molecular
Chaperone Conference**

Virtual Meeting

Saturday, January 15, 2022

Hosted by Northwestern University

Evanston, Illinois

Program Chairs

Silvia Cavagnero, *Department of Chemistry,
University of Wisconsin-Madison*

Jian Li, *Aging and Metabolism Research Program,
Oklahoma Medical Research Foundation*

Meeting Organizers

Rick Morimoto, *Department of Molecular Biosciences,
Northwestern University*

Rebecca Phend, *Department of Molecular Biosciences,
Northwestern University*

PROGRAM

All times in CST

8:45 - 9:00am

Welcome remarks by Rick Morimoto

Session I: Cellular Stress Response

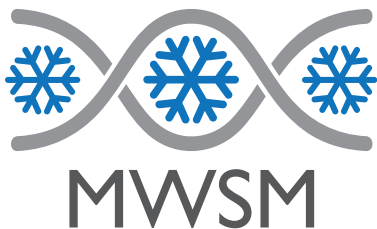
Session Chair:

Elise Kikis, The University of the South

9:00 - 9:15am

C16orf72/HAPSTR is a molecular rheostat in an integrated network of stress response pathways

David R. Amici, Daniel J. Ansel, Kyle A. Metz, Roger S. Smith, Claire M. Phoumyvong, Sitaram Gayatr, Tomasz Chamera, Stacey L. Edwards, Brendan P. O'Hara, Shashank Srivastava, Sonia Brockway, Seesha R Takagishi, Byoung-Kyu Cho, Young Ah Goo, Neil L. Kelleher Issam Ben-Sahra, Daniel R. Foltz, Jian Li, Marc L. Mendillo



27th Annual Midwest Stress Response and Molecular Chaperone Conference

Dept. of Biochemistry and Molecular Genetics, Northwestern University Feinberg School of Medicine, Chicago, IL

9:15 - 9:30am

The functional and molecular determinants of stress-induced mRNA condensation

Hendrik Glauninger, Jared A.M. Bard, Caitlin J. Wong Hickernell, Tobin R. Sosnick, Edward W.J. Wallace, D. Allan Drummond
Department of Biochemistry and Molecular Biology, University of Chicago, Chicago, IL

9:30 – 9:45am

Disruption of cellular redox buffering impacts spatial protein quality control via altered dynamics of the sequestrase Hsp42 in yeast

Davi L. Gonçalves, Sara Peffer, and Kevin A. Morano
Department of Microbiology and Molecular Genetics, McGovern Medical School at UTHealth, Houston, TX

9:45 - 10:00am

Rapid Hsp70 phosphorylation is required for the heat shock response and cell integrity signaling in yeast

Siddhi O. Paranjape and Andrew W. Truman
Department of Biological Sciences, University of North Carolina, Charlotte, NC

Session II: Proteinopathies

Session Chair:

Marc Mendillo, Northwestern University, Feinberg School of Medicine

10:00 - 10:15am

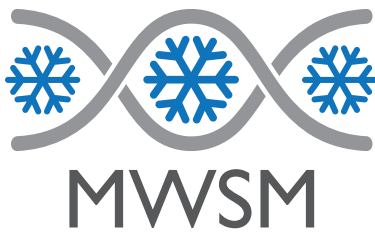
Mechanistic insights and potential for therapeutic rescue of a chaperonopathy: Limb Girdle Muscular Dystrophy (LGMD1)

Ankan Kumar Bhadra, Conrad Chris Wehl, Heather True
Department of Cell Biology and Physiology, Washington University School of Medicine, St. Louis, MO

10:15 - 10:30am

Aggregation-prone proteins and their cooperation in human proteinopathies

D. Yu, N. Zarate, T. Brown, R. Mansky, A. White, W. Tsai, De'jah Coates, C. Nanclares, C. Tomas-Zapico, Y. Zhang, J. J. Lucas, A. Araque, M. Cvetanovic, **R. Gomez-Pastor**



27th Annual Midwest Stress Response and Molecular Chaperone Conference

Department of Neuroscience, Univ. of Minnesota - Twin Cities Campus, Minneapolis, MN

10:30 - 10:45am

Coevolution is pervasive between unrelated glycosylation pathways and points to potential disease modifiers

Holly Thorpe, Nathan Clark, Clement Y. Chow
University of Utah, Department of Human Genetics, Salt Lake City, UT

10:45 - 11:00am

Disruption of proteostasis by traffic-derived air pollution exacerbate neurodegenerative disease risk

Bailey Garcia Manriquez, Julia Papapanagiotou, Claire Strynick, Prisha Rajasekaran, Hayeon Rhou, Jeremiah Studivant, Elise A. Kikis
Department of Biology, The University of the South, Sewanee, TN

11:00 - 11:15am

Break

Plenary session
Session Chair:

Introduction of Plenary Speaker by Jian Li

11:15am - 12:00pm

Linking cellular stress responses to systemic physiology: mechanisms and consequences

Veena Prahlad, Associate Professor in the Interdisciplinary Graduate Program in Neuroscience at the University of Iowa, Iowa City, IA

12:00 - 12:10pm

Q&A

12:10 - 12:40pm

Lunch and online social gathering

12:40 - 1:40pm

Poster session and online social gathering

Session III: Protein folding and chaperone–client interactions

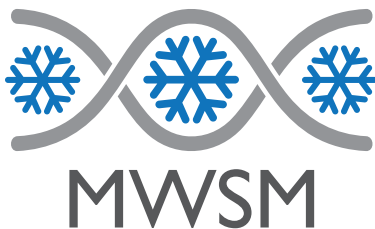
Session Chair:

Rocio Gomez-Pastor, University of Minnesota, Medical School

1:40 - 1:55pm

Systematic Interrogation of Protein Refolding Under Cellular-Like Conditions

Philip To, Sea On Lee, Yingzi Xia, Taylor Devlin, Karen G. Fleming, **Stephen D. Fried**



27th Annual Midwest Stress Response and Molecular Chaperone Conference

Department of Chemistry, Johns Hopkins University, Baltimore, MD

1:55 - 2:10pm

The CLPX Translocase and its Application to the Study of Vectorial Protein Folding

Iker F. Soto Santarriaga & Patricia L. Clark
Department of Chemistry & Biochemistry, University of Notre Dame, Notre Dame, IN

2:10 - 2:25pm

Unexpected control of protein self-association by translation rate

Shriram Venkatesan, Jeffery J. Lange, Brooklyn Lerbakken, Dai Tsuchiya, Paula Berry, Tejbir S. Kandola, Brian Slaughter, Jay R. Unruh and Randal Halfmann
Stowers Institute for Medical Research, Kansas City, MO

2:25 - 2:40pm

Critical beginnings: Tuning of solubility and structural accuracy of newly-synthesized proteins by the Hsp70 chaperone system

Rachel B. Hutchinson, Rayna M. Addabbo, Matthew D. Dalphin, Miranda F. Mecha, Yue Liu, Silvia Cavagnero
Department of Chemistry, University of Wisconsin-Madison, Madison, WI

Session IV: Proteostasis control at the organismal, cellular and subcellular level

Session Chair:

Stephen Fried, Johns Hopkins University

2:40 - 2:55pm

A metastable protein conformational switch reveals cell state transitions in aging and stress

Laura C Bott, Ambre J Sala, Renee M Brielmann, Richard I Morimoto
Department of Molecular Biosciences; and Rice Institute for Biomedical Research, Northwestern University, IL

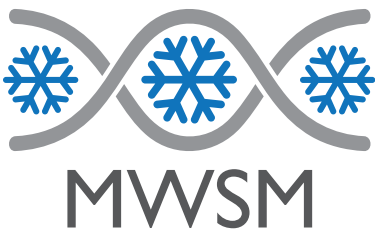
2:55 – 3:10pm

Functional interaction between HSF1 and TIMM17A controls mitochondrial proteostasis and energy production in cancer cells

Sapkota Hem, Shibata Y., Fesiuk A., Antalek M., Sail V., Ansel D.J, Mendillo M. L., Morimoto R. I., Li J.
Aging and Metabolism Research Program, Oklahoma Medical Foundation, Oklahoma City, OK

3:10 – 3:25pm

Clearance of nuclear and cytosolic aggregates at nuclear-vacuolar junctions



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Emily M Sontag, Jian-Hua Chen, Gerry McDermott, Patrick T Dolan, Dan Gestaut, Mark A LeGros, Carolyn Larabell, Judith Frydman
Marquette University, Biological Sciences, Milwaukee, WI

3:25 - 3:40pm

HYPE-mediated AMPylation as a novel therapeutic target for proteostasis

Ali Camara and Seema Mattoo
Department of Biological Sciences, Purdue University, West Lafayette, IN

3:40pm

Closing remarks by Rick Morimoto, Silvia Cavagnero, and Jian Li.

This annual meeting is generously supported by The Daniel F. and Ada L. Rice Institute for Biomedical Research.

We thank Sue Fox of Northwestern University for her assistance in planning and organizing this conference.