

28th Annual Midwest Stress Response and Molecular Chaperone Conference

Saturday, January 21, 2023
Hosted by Northwestern University
James L. Allen Center
2211 Campus Drive
Evanston, Illinois 60208

Program Chairs

Marc Mendillo, *Biochemistry and Molecular Genetics*
Northwestern University

Patricija van Oosten-Hawle, *Department of Biological Sciences,*
University of North Carolina, Charlotte

Laura Bott, *Department of Molecular Biosciences,*
Northwestern University

Meeting Organizers

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

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

PROGRAM

All times in CST

7:30 - 9:00 AM **Continental Breakfast**

9:00 - 9:05 AM **Opening remarks- Rick Morimoto, Northwestern University**

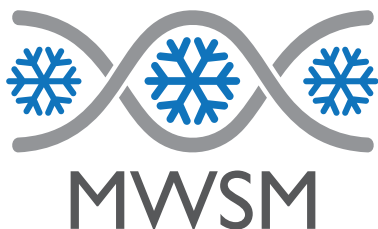
Session I- Cancer and Proteostasis

Session Chair: **Richard Carpenter**, *Indiana University School of Medicine -*
Bloomington, IN

9:05 - 9:20 AM **Co-deletion of ATAD1 with PTEN primes cells for BIM-mediated**
apoptosis

Heidi L. Fresenius, *Jacob M. Winter, Jared Rutter, and*
Matthew L. Wohlever
Department of Chemistry and Biochemistry, The University of
Toledo, Toledo, OH

9:20 - 9:35 AM **c-*Src* is a master regulator of extracellular Hsp90 chaperone**
machinery



28th Annual Midwest Stress Response and Molecular Chaperone Conference

Sarah J. Backe, Sarah Beth D. Votra, Matthew P. Stokes, Matteo Castelli, Luca Torielli, Giorgio Colombo, Mark R. Woodford, Mehdi Mollapour, and Dimitra Bourboulia
Department of Urology, Upstate Cancer Center, State University of New York, Upstate Medical University, Syracuse, NY

9:35 - 9:50 AM

Protein Folding Chaperones Detect BRCA1 Mutation Severity

Brant Gracia, Angelica Gutierrez Barrera, Banu Arun, Georgios Karras
Department of Genetics, The University of Texas MD Anderson Cancer Center, Houston, TX

9:50 - 10:05 AM

The HAPSTR2 retrogene buffers resilience in mammals

David R. Amici, Harun Cingoz, Milad J. Alasady, Sammy Alhayek, Claire M. Phoumyvong, Marc L. Mendillo
Dept. of Biochemistry and Molecular Genetics, Northwestern University Feinberg School of Medicine, Chicago, IL

Session II- Chaperone Function and Regulation

Session Chair:

Dimitra Bourboulia, State University of New York, Upstate Medical University, Syracuse, NY

10:05 - 10:20 AM

The Hsp70 chaperone code regulates the core heat shock response

Siddhi Omkar, Elizabeth M. Abedi, Moritz Muehlhofer, D. Allan Drummond, Johannes Buchner, and Andrew W. Truman
Department of Biological Sciences, University of North Carolina, Charlotte, NC

10:20 - 10:35 AM

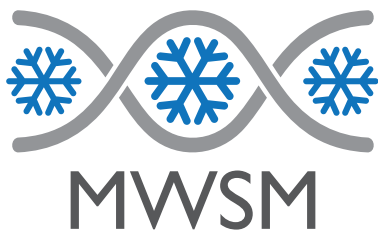
To Hold or to Fold: Insight into Grp94 chaperone mechanisms

Yaa S. Amankwah, Yasmeeen Fleifil, Preston Collins, Katherine Vitou, Erin Unruh, and Andrea N. Kravats
Department of Chemistry and Biochemistry, Miami University, Oxford, OH

10:35 - 10:50 AM

O-GlcNAcylation suppresses TRAP1 activity and promotes mitochondrial respiration

Seungchan Kim, Sarah J. Backe, Laura A. Wengert, Anna Johnson, Michael S. Bratslavsky, **Mark R. Woodford**
Department of Urology, Upstate Cancer Center, Department of Biochemistry & Molecular Biology, SUNY Upstate Medical University, Syracuse, NY



28th Annual Midwest Stress Response and Molecular Chaperone Conference

10:50 - 11:05 AM

Substrate specificity modulates Hsp104 middle domain function

Hannah Buchholz, Jane Dorweiler, Sam Guereca, Adam Knier, Brett Wisniewski, James Shorter, Anita Manogaran
Department of Biological Sciences, Marquette University, Milwaukee, WI

11:05 - 11:20 AM

Coffee Break

Session III- Protein Aggregation and Disease

Session Chair:

Rocio Gomez-Pastor, University of Minnesota, Minneapolis, MN

11:20 - 11:35 AM

CK2 alpha prime and alpha-synuclein pathogenic functional interaction mediates synaptic dysregulation in Huntington's disease

Dahyun Yu, Nicole Zarate, **Angel White**, De'jah Coates, Wei Tsai, Carmen Nanclares, Francesco Cuccu, Johnny S. Yue, Taylor G. Brown, Rachel H. Mansky, Kevin Jiang, Hyuck Kim, Tessa Nichols-Meade, Sarah N. Larson, Katie Gundry, Ying Zhang, Cristina Tomas-Zapico, Jose J. Lucas, Michael Benneyworth, Gülin Oz, Marija Cvetanovic, Alfonso Araque, and Rocio Gomez-Pastor
Department of Neuroscience, School of Medicine, University of Minnesota, Minneapolis, MN

11:35 - 11:50 PM

Global proteome metastability response in isogenic animals to missense mutations and polyglutamine expansions in aging

Xiaoqing Sui, Miguel A. Prado, Joao A. Paulo, Steven P. Gygi, Daniel Finley, Richard I. Morimoto
Department of Molecular Biosciences and Rice Institute for Biomedical Research, Northwestern University, IL

11:50 - 12:05 PM

Limb Girdle Muscular Dystrophy (LGMD) D1: Finding ways using the prion system to understand disease pathogenesis for future therapeutic interventions

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

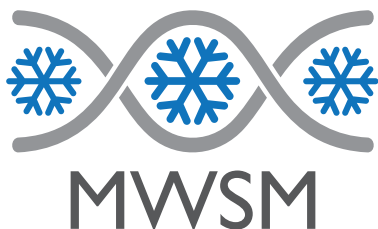
12:05 - 12:20 PM

Neuronal IL-17 modulates p53/CEP-1 activity to control *C. elegans* developmental diapause

Abhishiktha Godthi, Srijit Das, Johnny Cruz-Corchado, Andrew Deonarine and Veena Prahlad
Department of Biology, University of Iowa, Iowa City, IA

12:20 - 12:45 PM

Group picture



28th Annual Midwest Stress Response and Molecular Chaperone Conference

12:45 - 1:30 PM

Lunch

1:30 - 2:45 PM

Poster Session

Session IV- Protein synthesis and Degradation

Session Chairs:

Daniel Czyz, University of Florida, Gainesville, FL

Anat Ben-Zvi, Ben-Gurion University of the Negev, Beer-Sheva, Israel

2:45 - 3:00 PM

Critical Beginnings: Selective Tuning of Solubility and Structural Accuracy of Newly-Synthesized Proteins by the Hsp70 Chaperone System

Heather Allaman, Rayna M. Addabbo, Rachel B. Hutchinson, Matthew D. Dalphin, Miranda F. Mecha, Yue Liu, and Silvia Cavagnero

Department of Chemistry, University of Wisconsin, Madison, WI

3:00 - 3:15 PM

Friend or foe? The potential role of the proteasome in amyloid beta nucleation.

Alex T. Von Schulze, Justin Mehojah, Lexie Berkowicz, Xiaoqing Song¹, and Randal Halfmann

Stowers Institute of Medical Research, Kansas City, MO

3:15 - 3:30 PM

Testing Mechanisms for Homomeric Protein Assembly In Vivo

McKenze J. Moss and Patricia L. Clark

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

3:30 - 3:45 PM

Modulation of Ribosomal Frameshifting by Cotranslational Folding and Misfolding of the Nascent Polypeptide Chain

Patrick J. Carmody, Matthew H. Zimmer, Charles P. Kuntz, Haley R. Harrington, Kate E. Duckworth, Wesley D. Penn, Suchetana Mukhopadhyay, Thomas F. Miller III, and Jonathan P. Schleich

Department of Chemistry, Indiana University, Bloomington, IN

Plenary session

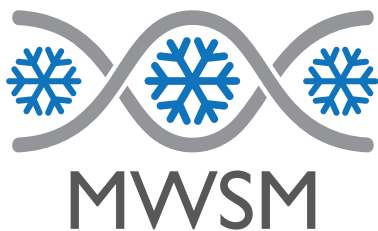
3:45 - 3:50 PM

Introduction of Plenary Speaker by Marc Mendillo, Northwestern University

3:50 - 4:35 PM

Rethinking the cellular response to heat shock

D. Allan Drummond, Associate Professor
Biochemistry & Molecular Biology and Genetic Medicine



***28th Annual Midwest Stress Response and
Molecular Chaperone Conference***

The University of Chicago, Chicago, IL

4:35 - 4:50 PM

Q&A

4:50 - 5:00 PM

Closing Remarks by Patricija van Oosten-Hawle, *University of North Carolina, Charlotte*

5:00 - 6:30 PM

[Reception w/food & beverages at the Allen Center](#)

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.