42nd International Society for Heart Research-North American Section (ISHR-NAS)

ADVANCING CARDIOVASCULAR HEALTH BY ENABLING TECHNOLOGIES AND TRANSLATIONAL RESEARCH

JUNE 27-30, 2023
MADISON, WI

International Society for Heart Research
North American Section

University of Wisconsin Cardiovascular Research Center

WELCOME

On behalf of the Organizing and Program Committee, we are pleased to welcome you to the 42nd International Society for Heart Research-North American Section (ISHR-NAS) meeting, June 27-30, 2023, in Madison, Wisconsin, which is ancestral Ho-Chunk land, a place their Nation has called Teejop (day-JOPE).

The meeting, entitled Advancing Cardiovascular Health by Enabling Technologies and Translational Research, will explore cutting-edge science and technology that lead to clinical breakthroughs. We are thrilled to bring together cardiovascular scientists and trainees from all over the world to move this important research forward.

The meeting will be comprised of 24 scientific sessions along with two poster sessions, awards, workshops, networking opportunities, and exhibits from our generous sponsors. We are very thankful for their support of this meeting, and we want to extend a special thanks to those who supported the Women's Initiative, which is tailored to help guide members through the challenges faced by women in science. In addition, we are particularly grateful to the early career investigators (ECIs) and mid-career investigators (MCIs) for the contributions to make this meeting a remarkable event.

While the conference has brought you here, we hope you will take time to enjoy all that Madison has to offer, including our conference location, the Monona Terrace Convention Center, designed by Wisconsin native and internationally renowned architect Frank Lloyd Wright. This building features spectacular views of Lake Monona, which is just one of our many lakes. From our beautiful lake paths to theaters, Farmers' Markets, award-winning restaurants, and more, Madison offers a unique experience.

Again, on behalf of the organizing and scientific program committees, we thank you again for attending the conference and wish you a warm welcome to Madison, Wisconsin.

Sincerely,

Timothy Kamp, MD, PHD

Conference Co-chair

Ying Ge, PhD

Conference Co-chair

Héctor H. Valdivia, MD, PHD

Conference Co-chair

TABLE OF CONTENTS

Cover Photo: Bryce Richter / UW-Madison

Thank you to the Local Organizing Committee for their assistance in planning this meeting:

Richard Moss
Lee L. Eckhardt
Alexey Glukhov
J. Carter Ralphe
Francisco Alvarado
Ahmed Mahmoud
Wei Guo
Junsu Kang
Sean Palecek
Gail Robertson

ISHR-NAS Madison
Agenda-at-a-Glance

	Tuesday (June 27)	Wednesday (June 28)	Thursday (June 29)	Friday (June 30)	
Registration*	6:30-18:30	6:30-17:00	7:00-17:00	6:30-12:00	
7:00		Women's Initiative Breakfast (Ballroom C)		JMCC - Meet the Editors Breakfast (Ballroom C)	7:00
7:30			DEI Workshop Breakfast (Ballroom C)		7:30
8:00	Welcome - Héctor Valdivia	Keynote lecturer-Donald Bers (Lecture Hall)		MCI Research Achievement Award Jennifer Davis (Lecture Hall)	8:00
8:30			Mentorship Award (Lecture Hall)		8:30
9:00	ECI Scientific Symposium (Ballroom A)	Sessions 1 -3 (Ballroom A, Ballroom B, Hall of Ideas EH)	Sessions 10 -12 (Ballroom A, Ballroom B, Hall of Ideas EH)	Sessions 16 -18 (Ballroom A, Ballroom B, Hall of Ideas EH)	9:00
9:30					9:30
10:00	Coffee Break (Ballroom A)				10:00
10:30	ECI Career Workshop, Bits and Bytes of Multi-Omics Analysis (Ballroom A) ISHR-International Committee (Meeting Room K)	Coffee Break (Ballroom D)	Coffee Break (Ballroom D)	Coffee Break (Ballroom D)	10:30
11:00		Sessions 4 -6 (Ballroom A, Ballroom B, Hall of Ideas EH)	Sessions 13-15 (Ballroom A, Ballroom B, Hall of Ideas EH)	Sessions 19-21 (Ballroom A, Ballroom B, Hall of Ideas EH)	11:00
11:30					11:30
12:00					12:00
12:30	Lunch Roundtable Panel Discussion NIH (Ballroom C)	Bruker Sponsored Lunch Seminar (Ballroom C)	Thermo Fisher Sponsored Lunch Seminar (Ballroom C); ISHR-NAS Council (Meeting Rm K)	Agilent Sponsored Lunch Seminar (Ballroom C)	12:30
13:00					13:00
13:30	Welcome - Tim Kamp NAS Innovator Award - Sumanth Prabhu (Lecture Hall)	MCI Scholarship Competition (3 finalists) (Lecture Hall)	Workshops: Omics: New Technology (Ballroom A), Advancing Engineered Heart Tissue (Ballroom B), Organ System Crosstalk (Hall of Ideas EH)	Sessions 21-24 (Ballroom A, Ballroom B, Hall of Ideas EH)	13:30
14:00					14:00
14:30	Young Investigator Competition Part I: Junior Group (Lecture Hall)				14:30
15:00				Refreshments (Lecture Hal)	15:00
15:30	Refreshments (Lecture Hall	Business Meeting (Lecture Hall) and Break	Poster Session 2 (Grand Terrace)	President's Distinguished Lecture (Lecture Hall) - Jennifer Van Eyk	15:30
16:00	Young Investigator Competition Part II Senior Group (Lecture Hall)	Sessions 7 -9 (Ballroom A, Ballroom B, Hall of Ideas EH)		Closing - Ying Ge	16:00
16:30	Peter Harris Distinguished Scientist Award - Daniel Kelly (Lecture Hall)		Break	Women's Initiative Social Event	16:30
17:00					17:00
17:30	Welcome Reception (Grand Terrace) Welcome - Richard L. Moss	Poster Session 1 (Grand Terrace)			17:30
18:00					18:00
18:30			Reception and Gala Banquet (Rooftop)		18:30
19:00		President's Dinner (by Invitation)			19:00
19:30					19:30
20:00	ECI/MCI Social (Great Dane Pub)				20:00
20:30					20:30
21:00			Dessert and Dancing (Grand Terrace)		21:00
21:30					21:30
22:00					22:00
22:30					22:30

Monday (June 26) 1:00-8:00 PM, **The Academy of Cardiovascular Research Excellence Pre-meeting**, https://my-acre.org/ for details

Early registration Monday 15:00-18:00

Meals:

Breakfast is available Wednesday-Friday during the first morning session or in the Grand Terrace beginning at 7 a.m

Please attend Lunch Seminars for hot lunch or boxed lunches are available in Ballroom D

Exhibit Hours: Ballroom D

Tuesday, June 27	Wednesday, June 28	Thursday, June 29	Friday, June 30
1:30-7:30 p.m	10 a.m.-5:30 p.m.	10 a.m.-5:30 p.m.	10 a.m.-1 p.m.

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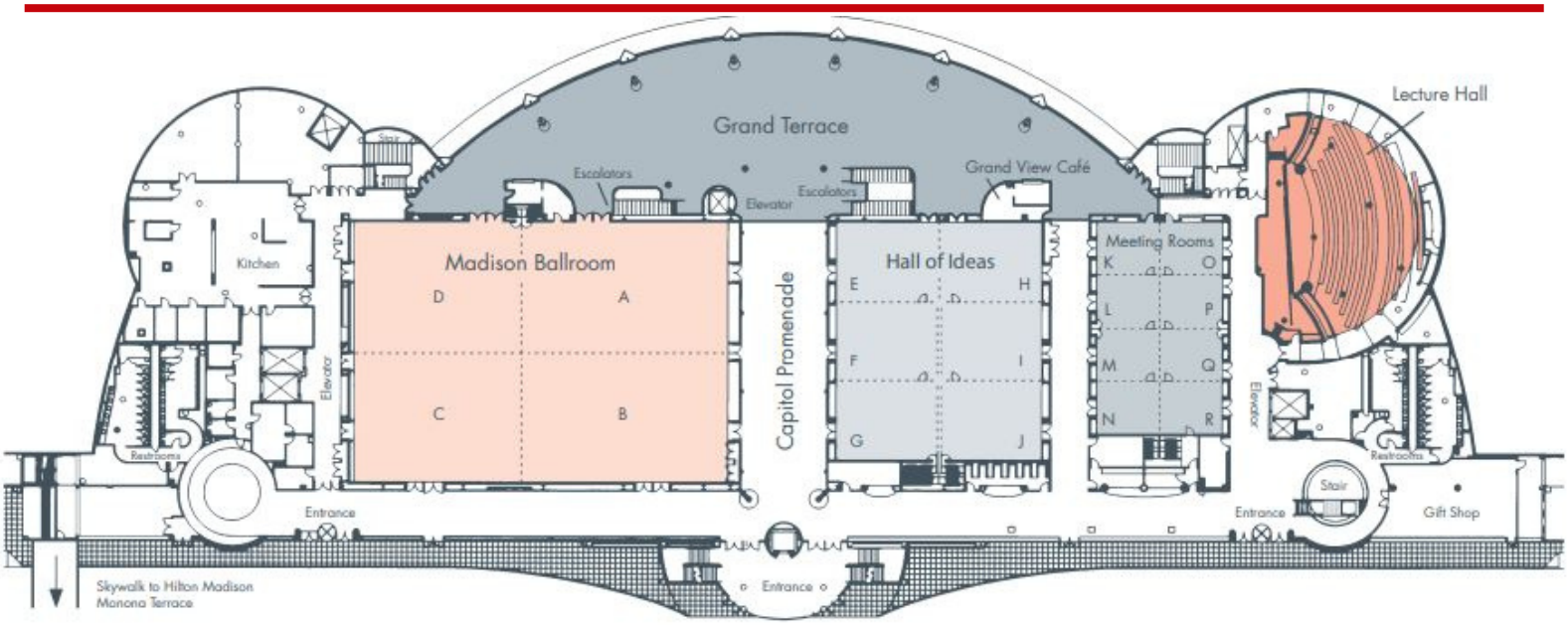
NAVIGATING THE MONONA TERRACE



Most of our events will take place on the 4th level of the Monona Terrace. A map, courtesy of the Monona Terrace, is available above. You can also access additional maps and information at **mononaterrace.com/**

To learn about parking options around the Monona Terrace please visit, **https://www.cityofmadison.com/parking-utility/garages-lots/current-hourly-parking-availability**

THINGS TO DO IN MADISON, WISCONSIN

With five lakes, multiple parks, museums, trails, and a world renowned university, Madison has something for everyone. For more, see Destination Madison (https://www.visitmadison.com)

Biking, Walking, Hiking
Take a spin around our lakes or on the many bike paths using an ebike https://madison.bcycle.com. Walk or run from the Memorial Union along the Temin Lakeshore Path. Or take an Uber to the UW-Madison Arboretum (https://arboretum.wisc.edu), where you can walk around and enjoy a brilliant curation of trees and wildlife.

Paddling
Get out on the water and discover our beautiful lakes. Kayak, canoe, and SUP with Brittingham Boast on Monona Bay. https://www.visitmadison.com/listings/paddle-on-lake-monona/183530/

Wet your Whistle
Sample craft brews, cocktails, and mocktails at nearby restaurants like Merchant, Tornado Room, Nattspil, and the Robin Room. Or make a reservation at Fairchild, home of the 2023 James Beard's Best Chef Midwest Award!

Summer Concerts
Concert on the Square: Wednesday, June 28 at 7 p.m., see Grammy-nominated Afro-Caribbean music group ¡Viva Tiempo Libre! on the Capitol Square, walking distance from the Monona Terrace.

Art
Check out the Chazen Museum of Art on the UW-Madison campus or on State Street, closer to the meeting site, tour MMOCA, Madison's modern art museum.

Tuesday, June 27

Registration is open 6:30-6:30

8:00-10:00 **Welcome** **Ballroom A**

Héctor Valdivia, UW-Madison - Conference Co-chair

Early Career Investigator (ECI) Scientific Symposium

Moderators:
Cat Makarewich, Cincinnati Children's Hospital; Kalina Rossler, UW-Madison

Disruption of RS Domain Function in RBM20 is Causative in Dilated Cardiomyopathy
Yanghai Zhang, UW-Madison

Membrane-stabilizing Copolymers Enhance Dystrophic Skeletal Muscle Function and Confer Protection Against Isoproterenol-induced Death in the mdx Mouse
Joseph Quick, University of Minnesota

Alternative Polyadenylation of SCN5A Generates a Novel N-terminal NaV1.5 Microprotein
Nathan Witmer, University of Iowa

GRK2-mediated Cardiomyocyte Signaling Factors are Responsible for Heart-fat Communication and Mediate the Development of Cardiometabolic Disease
Stephanie Kereliuk, Lewis Katz School of Medicine at Temple

The Histone Methyltransferase SMYD5 Regulates Cardiac Inflammation via Histone H4K20 Trimethylation
Samuel Hickenlooper, University of Utah

A Novel Mediator of Cardiac Hypertrophy and Heart Failure - Activation of YAP via O-GlcNAcylation in the Heart
Priya Umapathi, Johns Hopkins University

Isocitrate Dehydrogenase 1 Regulates Cardiac Metabolic Adaptation during Oncometabolic Stress
Anja Karlstaedt, Cedars Sinai

Generation of More Mature hESC-derived Cardiomyocytes with Reduced Arrhythmogenicity to Facilitate Safe and Efficient Regenerative Therapy
Arash Pezhouman, Baylor College of Medicine

Age-related Effects of Doxorubicin Exposure on Cardiac Function in Rats
Ashley Smuder, University of Florida

Methylglyoxal Glycation Competes with Ubiquitination at the Cardiac Sarcomere, Disrupting Function
Christine Delligatti, Loyola University Chicago

Decoding the Epigenetic Language of Gut Microbiome
Jessica Han, Wisconsin Institute for Discovery

Troponin I tyrosine 26 Phosphorylation Improves Relaxation and is Beneficial During Pathological Diastolic Dysfunction
Lorien Salyer, The Ohio State University

10:00-10:30 **Coffee Break** **Ballroom A**

10:30- 12:30 **International ISHR Council Meeting** **Meeting Room K**

10:30- 12:30 **Early Career Investigator (ECI) Workshop** **Ballroom A**

Bits and Bytes of Multi-Omics Analysis

Moderator:
Anja Karlstaedt, Cedars Sinai Medical Center

Introduction to the Workshop

Fundamentals of Metabolomics and Flux Analysis
Bradford Hill, University of Louisville

Introduction to Lipidomics and a Dive into the World of Ion Mobility Spectrometry
Erin Baker, UNC Chapel Hill

Analyzing Small Molecules as A Trainee – Why, How and When
Melissa R. Pergrande, UW-Madison

Developing Targeted Workflows, Improving Instrument Design and Intelligence can Improve the Usability of Mass Spectrometry for Multi-omic Analysis
John Sausen, Agilent Technologies

Panel Discussion and Open Forum

Tuesday, June 27

12:30 -1:30 **Taking the Mystery out of the NIH, Lunch Roundtable** **Ballroom C**

Moderators:
Ronald Vagnozzi, University of Colorado Anschutz
Valentina Lo Sardo, UW-Madison

Speakers:
Renee Wong, Chief, Heart Failure and Arrhythmias Branch, Division of Cardiovascular Sciences, NHLBI
Olga Tjurmina, Program Director, Heart Failure and Arrhythmias Branch, Division of Cardiovascular Sciences, NHLBI

1:30-1:35 **Welcome** **Lecture Hall**

Timothy Kamp, UW-Madison, Conference Co-chair

1:35-2:30 **NAS Innovator Award**

Sumanth Prabhu, Washington University

Heart Failure and Inflammation – A Loss of Macrophage Rhythm

Moderator: David Lefer, Cedars Sinai

Sponsor: International Society for Heart Research, North American Section

2:30-4:30 **Young Investigator Competition** **Lecture Hall**

Moderator:
Kika Sucharov, University of Colorado Anschutz

Part I: Junior Group

2:30 **Cross-lineage Potential of Ascl1 Uncovered by Comparing Diverse Reprogramming Regulatomes**
Haofei Wang, PhD, UNC-Chapel Hill

2:50 **HDAC11 Inhibition Triggers Bimodal Thermogenic Pathways to Circumvent Adipocyte Catecholamine Resistance**
Emma Robinson, PhD, University of Colorado Anschutz Medical Campus

3:10 **Gene Dynamics of Maturation in Endogenous and Pluripotent Stem Cell-derived Cardiomyocytes**
Suraj Kannan MD, PhD candidate, Johns Hopkins School of Medicine

3:30-3:45 **Refreshment Break** **Lecture Hall**

Part II: Senior Group

3:45 **Unveiling DELE1-HRI-eIF2a Signaling in Mitochondrial Cardiomyopathy**
Xi Fang, PhD, University of California San Diego

4:05 **Discovery of an Essential Regulator of Mitochondrial Calcium Efflux**
Joanne Garbincius, PhD, Temple University

4:25 **Donor Macrophages Modulate Rejection after Heart Transplantation**
Benjamin Kopecky, MD, PhD, Washington University of St. Louis

Tuesday, June 27

4:45-5:45 — **Lecture Hall**

Peter Harris Distinguished Scientist Award

Daniel Kelly, University of Pennsylvania

Deciphering the Metabolic Origins of Heart Failure: Towards Novel Therapeutic Targets

Moderator: Yoshihiko Saito, Nara Medical University

Sponsor: International Society for Heart Research

5:45-7:30 — **Grand Terrace**

Welcome Reception

Welcome - Richard L. Moss, UW-Madison Honorary Conference Chair

Hors d'oeuvres and refreshments

We invite you to view the exhibits during this time as well — **Ballroom D**

8:00-10:00

Evening Social Time

ECI&MCI

joint event

Great Dane Pub & Brewing Company, 123 E. Doty St.

Wednesday, June 28

Registration is open 6:30-5:00

7:00- 10:30 — **Poster Set-up for Session One** — **Grand Terrace**

7:00-8:00 — **Women's Initiative Breakfast** — **Ballroom C**

Moderators:
Kika Sucharov, University of Colorado Anschutz
Ying Ge, UW-Madison
Emma Robinson, University of Colorado Denver
Maria Kontaridis, Masonic Medical Research Institute
KC Woulfe, University of Colorado Anschutz

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8:00-9:00 — **Lecture Hall**

Keynote Lecturer - Donald Bers, UC-Davis
Calcium and CaMKII in Heart Failure and Arrhythmias
Moderator: Richard L. Moss, UW-Madison

Sponsor: University of Wisconsin Cardiovascular Research Center

9:00-10:30 — **SESSIONS 1-3**

Session One — Single Cell Analysis to Advance Cardiovascular Research — Ballroom A

Moderators:
Masaki Ieda, University of Tsukuba
Anja Karlstaedt, Cedars Sinai

Cedars Sinai Smidt Heart Institute

9:00 **Single Cell Omics Approach to Study Cardiac Cell Identity and Plasticity**
Li Qian, University of North Carolina, USA

9:20 **Donor Macrophages Drive Post-Transplant Cardiac Allograft Vasculopathy**
Benjamin Kopecky*, Kory Lavine, Washington University in St. Louis, USA

9:32 ***Integrating Single-Cell and Spatial Transcriptomics to Uncover Mechanisms of Mammalian Heart Regeneration***
Miao Cui, Harvard Medical School, USA

9:52 **Single Cell Multiomics Guided Mechanistic Understanding of Fontan-associated Liver Disease**
Po Hu, Jack Rychik, ... Liming Pei*, Children's Hospital of Philadelphia, U. of Pennsylvania, Philadelphia, USA

10:04 **Single-Cell Proteomics of Genetically-Triggered Cardiovascular Diseases**
Sarah Parker, Cedars Sinai, USA

Session Two — Innovating Therapies for Arrhythmias — Ballroom B

Moderators:
Livia Hool, The University of Western Australia
Long-sheng Song, University of Iowa

MMRI Masonic Medical Research Institute

9:00 **Loss of I_{K1} Arrhythmogenesis; Using a Functional Genomic Approach to Determine Mechanistic-specific Treatment**
Lee Eckhardt, UW-Madison, USA

9:20 **Cardiac NaV1.5 Channel Exhibits a p38MAPK-dependent Modulation**
Snizhana Chorna, Marine Sarlandie,...Daniela Ponce Balbuena*
Ohio State University, Columbus, USA. L'Institut du Thorax, Université, Nantes, France

9:32 **Novel Mutation in TRPM4 Leads to Development of Short-QT Syndrome**
Maria Kontaridis, Masonic Medical Research Institute, USA

* oral abstract presenter

Wednesday, June 28

Session Two — Ballroom B

9:52 **ER Stress Contributes to Arrhythmia in Catecholaminergic Polymorphic Ventricular Tachycardia**
Roland Veress, Radmila Terentyeva,... Shanna Hamilton*
The Ohio State University, Columbus, USA. University of Arizona, Tucson, USA

10:04 **SK Channels as a Novel Therapeutic Target for Catecholaminergic Polymorphic Ventricular Tachycardia**
Dmitry Terentyev, Ohio State University, USA

Session Three — Apoptosis, Autophagy, and Cell Death — Hall of Ideas EH

Moderators: Yi Zhu, Tianjin Medical University
Inna Rabinovich-Nikitin, University of Manitoba

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

9:00 **Circadian Dependent Regulation of Autophagy in the Heart**
Lorrie Kirshenbaum, University of Manitoba, Canada

9:20 **Loss of Cardiac GPX4 Induces Dilated Cardiomyopathy via Mitochondrial Iron Overload-mediated Ferroptosis**
Xiaoyun Guo, Yi Chen, Yachang Zeng,...Qinghang Liu*, University of Washington, Seattle, USA

9:32 **Cardiomyocyte-Derived VEGFc Provides Protection Against Acute Myocardial-Ischemia Reperfusion Injury**
John Calvert, Emory University, USA

9:52 **Retinoic Acid-Related Orphan Receptors Regulate Autophagy and Cell Survival in Cardiac Myocytes during Hypoxic Stress**
Inna Rabinovich-Nikitin*
The Institute of Cardiovascular Sciences, Winnipeg, Canada, University of Manitoba, Winnipeg, Canada

10:04 **A Novel Platform for Caspase-9 Activation to Trigger Necrosis – not Apoptosis**
Richard Kitsis, Albert Einstein College of Medicine, NY, USA

10:30-11:00 **Coffee Break** — Ballroom D

11:00-12:30 **SESSIONS 4-6**

Session Four — Myofilament Function and Disease Mechanisms — Ballroom A

Moderators: Joe Metzger, University of Minnesota
Alexey Glukhov, UW-Madison

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11:00 **iPSC-derived Cardiac Models to Define Myofilament Function and Dysfunction**
Jolanda van der Velden, Amsterdam UMC, Netherlands

11:20 **Histone Deacetylase 8 Modulates Myofibril Relaxation**
Timothy L.M. Jones*, Christopher Hoffer,... Kathleen C. Woulfe
University of Colorado Anschutz Medical Campus, Aurora, CO, USA

11:32 **Molecular Mechanisms of Cardiac Myotropes**
Julian Stelzer, Case Western Reserve University, Cleveland, USA

11:52 **BAG3 Regulation And Lysosomal Kinetics In The Cardiac Sarcomere Protein Quality Control**
Ahmed Zied*, Jonathan Kirk, Michaela Door, Loyola University Chicago, Chicago, USA

12:04 **Thick Filament SRX/DRX Disequilibrium Mediated by an HCM Thin Filament Variant**
Jose Renato Pinto, Florida State University, Tallahassee, USA

* oral abstract presenter

Wednesday, June 28

Session Five — Calcium Dysregulation and Arrhythmias — Ballroom B

Moderators:
Litsa Kranias, University of Cincinnati
Joshua Goldhaber, Cedars Sinai

11:00 **Sudden Cardiac Arrest in Young Athletes: The Case of ARVC**
Mario Delmar, New York University, New York, USA

11:20 **CIB2 is a Novel Endogenous Repressor of Atrial Remodeling**
Yihui Wang*, Long-sheng Song, Shihua Zhao, Shanghai General Hospital, Shanghai, China

11:32 **Sex Differences in Cardiomyocyte Calcium Handling Alterations in CPVT**
Ana María Gómez, Université Paris-Saclay, Paris, France

11:52 **The Mechano-electric Feedback Mediates the Dual Effect of Stretch in Mice Sinoatrial Tissue**
Limor Arbel Ganon, Rami Eid, Matan Hamra, Yael Yaniv*, Technion-IIT, Haifa, Israel

12:04 **RyR2 Dysfunction in Cardiomyopathy**
Francisco Alvarado, UW-Madison, USA

Session Six — Cardiac Differentiation and Development — Hall of Ideas EH

Moderators:
Jiandong Liu, University of North Carolina
Pearl Quijada, UCLA

11:00 **Molecular Control of Heart Regeneration: Insights from the Longest Living rodent Naked Mole-rat**
Guo Huang, University of California, San Francisco, USA

11:20 **Indispensable Role of Neddylation in Cardiomyocyte Maturation and Perinatal Cardiac Development**
Jianqiu Zou*, Wenjuan Wang, Yi Lu, Augusta University, Augusta, USA.

11:32 **Hippo Signaling in Heart Regeneration**
James Martin, Baylor College of Medicine, Houston, USA

11:52 **Secondary Structures that Regulate mRNA Translation Provide Insights for ASO-mediated Modulation of Cardiac Hypertrophy**
Peng Yao*, Omar Hedaya, Aab Cardiovascular Research Institute,
Department of Medicine, University of Rochester Medical Center, Rochester, USA.

12:04 **Precision Medicine for Cardiomyopathies via Zebrafish Genetics**
Xiaolei Xu, Mayo Clinic, Rochester, USA

12:30-2:00 — Lunch Seminar — Ballroom C

Moderator: Emma Robinson, University of Colorado, Anschutz

Pushing the Boundaries of Label Free Single Cell Proteomics
Matt Willetts, PhD
Bruker Scientific

High Sensitivity Top-down Proteomics Toward Single Cell Analysis
Zhan Gao (Ying Ge Lab), UW-Madison

Single-cell Lipidomics Enabled by High-throughput Mass Spectrometry Imaging at Subcellular Resolution
Hua Zhang (Lingjun Li Lab), UW-Madison

Sponsor:

* oral abstract presenter

Wednesday, June 28

2:00-3:30 **MCI Research Award** **Lecture Hall**

Moderator:
Rajasekaran Namakkal-Soorappa, University of Alabama at Birmingham

2:00 **Introduction,** Rajasekaran Namakkal-Soorappa

2:06 **Cardiomyocyte Regenerative Potential in the Longest-Lived Rodent Naked Mole-rat**
Guo N. Huang, PhD, University of California, San Francisco, USA

2:31 **Extracellular Vesicle-Encapsulated AAVs for Therapeutic Gene Delivery to the Heart**
Susmita Sahoo, PhD, Icahn School of Medicine at Mount Sinai, New York, USA

3:01 **14-3-3 Binding Motif Phosphorylation Disrupts Hdac4 Organized Condensates to Stimulate Cardiac Reprogramming**
Zhong Wang, PhD, University of Michigan, Ann Arbor, USA

3:30-4:00 **ISHR-NAS Business Meeting (all members)** **Lecture Hall**

3:30-4:00 **Coffee Break (Refreshment Break)** **Ballroom D**

4:00-5:30 **SESSIONS 7-9**

Session Seven — Novel Multi-omics for Cardiac Precision Medicine — Ballroom A

Moderators:
Elizabeth Murphy, NHLBI
Valentina Lo Sardo, UW-Madison

UCLA David Geffen School of Medicine

4:00 **CRISPR Correction of Cardiomyopathies**
Eric Olson, UT Southwestern, Dallas, USA

4:20 **Deleting the Ribosomal Prolyl Hydroxylase OGFOD1 is Protective in Pressure Overload-Induced Cardiac Hypertrophy**
Leslie M. Kennedy*, Rebeca Rodriguez,... Elizabeth Murphy, NHLBI, Bethesda, USA.

4:32 **Spatial and Temporal Proteomics of Cellular Stress Responses**
Edward Lau, University of Colorado Anschutz, USA

4:52 **Multi-omic Characterization of Human Pluripotent Stem Cell-derived Cardiomyocyte Maturation during Long-term Culture**
Austin Feeney*, Aaron Simmons,... Sean Palecek, University of Wisconsin-Madison, USA

5:04 **Understanding Heart Development and Disease at Single-cell Resolution**
Mingxia Gu, Cincinnati Children's Hospital, Cincinnati, USA

Session Eight — Cardiac Signaling in Hypertrophy and Heart Failure — Ballroom B

Moderators: Zhao Wang, City of Hope
Cat Makarewich, University of Cincinnati

University of Wisconsin Cardiovascular Research Center

4:00 **The Role of Beta3 Adrenergic Receptor – dependent Regulation of Brain-Derived Neurotrophic Factor (BDNF) and Ischemic Heart Failure**
Walter Koch, Temple University, Cincinnati, USA

4:20 **Prolonged Expression of Slow Skeletal Troponin I Promotes Cardiac Regeneration after Myocardial Infarction in Mice**
Timothy Aballo*, Jiyoung Bae,...Ahmed Mahmoud, University of Wisconsin-Madison, USA

4:32 **Novel Signaling Pathways in the Initial Phases of HCM Development**
Beata Wolska, UIC

* oral abstract presenter

Wednesday, June 28

4:52 **Inhibition of MMP3 Improves Cardiac Ischemia-Reperfusion Injury through β1 receptor -Dependent Mechanisms**
Karim Ullah Ullah*, Qin Zhang,...Rongxue Wu, University of Chicago, Chicago, USA.

5:04 **Distinct Hormone Regulation in HFrEF and HFpEF**
Y. Kevin Xiang, UC Davis, USA

Session Nine — Novel Strategies to Understand Cardiotoxicity and Proteotoxicity — Hall of Ideas EH

Moderators:
Guo-Chang Fan, University of Cincinnati
Ryan Boudreaus, University of Iowa

UCLA David Geffen School of Medicine

4:00 **Modeling Cardiotoxicity using Human Stem Cell-derived Cardiomyocytes**
Chunhui Xu, Emory University, Atlanta, USA

4:20 **A Specialized Centrosome-proteasome Axis Mediates Proteostasis and Influences Cardiac Hypertrophy**
Jared McLendon*, Xiaoming Zhang, Ryan Boudreau, University of Iowa, Iowa City, USA

4:32 **hiPSC to Validate the Genomic Basis of Doxorubicin-Induced Cardiotoxicity**
Paul Burridge, Northwestern University, Chicago, USA

4:52 **Neutral Sphingomyelinase Mediates Phenotypes of Pathological Cardiac Remodeling**
Daniel Turner, William J DeLange... Alexey Glukhov, UW-Madison, USA

5:04 **Phosphoregulation of the Proteasome in Proteotoxicity**
XJ Wang, U South Dakota, Vermillion, USA

5:30-7:00 — **Poster Session 1, Reception and Sponsor Exhibit** — **Grand Terrace & Ballroom D**

7:00-10:00 — **President's Dinner Invitation Only** — **Park Hotel 22 S. Carroll St.**

* oral abstract presenter

Thursday, June 29

Registration is open 7:00-5:00

7:00- 10:30 — **Poster Set-up for Session Two** — **Grand Terrace**

7:30-8:30 — **DEI Workshop Breakfast** — **Ballroom C**

Moderators:
Hector Valdivia, UW-Madison
Francisco Alvarado, UW-Madison

Panelist:
Shiva Bidar-Sielaff
Associate Dean for Diversity and Equity Transformation
UW-Madison School of Medicine and Public Health
Gail Robertson
Kellett Professor, Director, NHLBI T32 Training Program in Translational Cardiovascular Science, UW-Madison

8:30-9:00 — **Eric N. Olson Mentorship Award- Donald Bers, UC-Davis** — **Lecture Hall**

Tales of Mentoring

Moderator: Timothy McKinsey, University of Colorado Anschutz

Sponsor: ENOMA

9:00-10:30 — **SESSIONS 10-12**

Session Ten — Inflammation and Metabolism in Cardiac Dysfunction — Ballroom A

Moderators:
Emilio Hirsch, University of Torino
Rongxue Wu, University of Chicago

9:00 **Macrophages and Cardiac Inflammation**
Edward Thorp, Northwestern University, Chicago, USA

9:20 **Lipocalin 10 Negatively Regulates Cardiovascular Permeability During Inflammation via Activating Endothelial LRP2 Signaling**
Xiaohong Wang, Wa Du,...Guo-Chang Fan*, University of Cincinnati College of Medicine, Cincinnati, USA.

9:32 **A Chromatin Complex Coupling Metabolism to Transcription "chrometabolon" Regulates Fibroblast Fate**
John Elrod, Temple University, Philadelphia, USA

9:52 **Expressing the Full-length SARS-CoV-2 Spike Protein in AAV9-tropism Tissues Causes Myocarditis in Mice**
Chase Kessinger, Zhiqiang Lin*, MMRI, Utica, USA

10:04 **Cell Type Specific Targeting of Cardiac Recovery**
Kory Lavine, Washington University, St. Louis, USA

Session Eleven — Data Science, Artificial Intelligence, Cardiac Systems Biology — Ballroom B

Moderator: Liming Pei, University of Pennsylvania
Alejandro Roldan-Alzate, UW-Madison

9:00 **AI-driven Informatics in Cardiovascular Biomedical Investigations**
Peipei Ping, UCLA, Los Angeles, USA

* oral abstract presenter

Thursday, June 29

Session Eleven — Ballroom B

9:20 **Impact of Human Glucocorticoid Receptor Variant rs6190 on Cardiovascular Health**
Hima Bindu Durumutla*, Fadoua El Abdellaoui Soussi,...Mattia Quattrocelli
Division of Molecular Cardiovascular Biology, Heart Institute, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA

9:32 **Integrating Gene Expression and Cell Organization to Examine Cell States in hiPSC-derived Cardiomyocytes**
Becky Zaunbrecher, Allen Institute for Cell Science, Seattle, USA

9:52 **Analysis of DNA Methylation Regulation of Cardiac Gene Expression Identifies Serpina3n as a Key Driver of Heart Failure Progression**
Sriram Ravindran, Caitlin Lahue, Christoph Rau*, UNC Chapel Hill, USA

10:04 **Phenotypic Screening, Machine Learning and New Therapeutic Targets for Cardiac Fibrosis**
Tim McKinsey, University of Colorado Anschutz, Aurora, USA

Session Twelve — Extracellular Vesicles, miRNAs in Heart Disease and Therapy — Hall of Ideas EH

Moderator: Jiang Chang, Texas A&M
Bo Liu, UW-Madison

9:00 **Novel RNA drugs bioinspired by EV contents**
Eduardo Marban, Cedars Sinai, Los Angeles, USA

9:20 **Diabetic Increase of MicroRNA449b Inhibiting Endognerous Antioxidative Stress Exacerbates Cardiac Ischemia-reperfusion Injury**
Jianli Zhao*, Zhijun Meng,...Yajing Wang, UAB, Birmingham, USA.

9:32 **The Secretome in Pathological Remodeling: More than a Prognostic Biomarker**
Kika Sucharov, University of Colorado Anschutz, Aurora, USA

9:52 **The Regulatory Role of miR-21 in Heart Failure with Preserved Ejection Fraction (HFpEF)**
Cody Juiguilon, Yang Wang,...Liya Yin*, Northeast Ohio Medical University, Rootstown, USA

10:04 **Altered micro-RNA Expression is Diabetic Peripheral Artery Disease and Potential Therapeutic Targets**
Ayotunde Dokun, University of Iowa, Iowa City, USA

10:30-11:00 **Coffee Break** — Ballroom D

11-12:30 **SESSIONS 13-15**

Session Thirteen — Mitochondrial Dynamics in Heart Diseases — Ballroom A

Moderators:
Nina Kaludercic, National Research Council of Italy (CNR)
Jean Bopassa, University of Texas Health Science Center at San Antonio

11:00 **Novel Mechanisms of Iron Sensing**
Hossein Ardehali, Northwestern University, Chicago, USA

11:20 **Necrotic Cell Death Occurs Via MCU-Independent Mitochondrial Ca^{2+} Uptake in Muscular Dystrophy**
Michael Bround*, Jiuzhou Huo... Jeffery Molkentin, Cincinnati Children's Hospital Medical Center, Cincinnati, USA

11:32 **Role of Mitochondrial ROS and the Cardiac Innate Immune Response in COVID-19-induced Arrhythmias**
Brian O'Rourke, Johns Hopkins University, Baltimore, USA

11:52 **Ventricular Differences in Mitochondrial Ca^{2+} Dynamics in Murine and Porcine Hearts**
Jae Hwi Sung, Hector Chapoy Villanueva,...Julia C. Liu*, University of Minnesota, Minneapolis, USA

* oral abstract presenter

Thursday, June 29

Session Thirteen

Ballroom A

12:04 **Mitochondrial Calcium and Cardiovascular Disease**
Elizabeth Murphy, NHLBI, Bethesda, USA

Session Fourteen — New Advances in iPSC Models for Heart Disease

Ballroom B

Moderators:
Peter Backx, York University
Gail Robertson, UW-Madison

11:00 **Stem Cells & Genomics for Clinical Trials in Dish**
Joseph Wu, Stanford University, Palo Alto, USA

11:20 **Estrogen-related Receptor α/γ is a Critical Transcriptional Regulator of Human Cardiomyocyte Maturation**
Tomoya Sakamoto*, Kirill Batmanov, Daniel Kelly
Cardiovascular Institute, DOM, Perelman School of Medicine, University of Pennsylvania, Philadelphia, USA

11:32 **Environmental Factors Influence Somatic Cell Reprogramming to Cardiomyocyte-like Cells**
Reza Ardehali, Baylor College of Medicine, Houston, USA

11:52 **Development of Chamber-specific Ventricular Cardiomyocytes from Human Pluripotent StemCells for Disease Modeling and Therapy**
Jianhua Zhang*, Gina Kim, Benji Gelfand, Marianna Kruger, Xuan Feng, Kate Orland, Lee Eckhardt,Timothy Kamp, University of Wisconsin - Madison, USA

12:04 **Unlocking Secrets of the Human Heart: Defining the Cell Surface Proteome to Advance hiPSC models for Research and Therapy**
Rebekah Gundry, University of Nebraska, Omaha, USA

Session Fifteen — Cardiac Fibroblasts in Health and Disease

Hall of Ideas EH

Moderators:
Jeff Molkentin, Cincinnati Children's Hospital
Jennifer Davis, University of Washington

11:00 **Functional Consequences of Fibroblast Loss in Tissue Homestasis and Disease**
Michelle Tallquist, Univeristy of Hawaii

11:20 **Role of Pyruvate Kinase in Pressure Overload-induced Cardiac Remodeling and Heart Failure**
Zhao Wang, City of Hope National Medical Center, Duarte, USA

11:32 **MBNL1 Regulates Programmed Postnatal Switching between Regenerative and Differentiated Cardiac Myocyte States**
Logan Bailey, University of Washington

11:52 **Novel Pathogenic Roles of Desmoplakin Mutations in Aggressive Cardiac Fibrosis of Desmoplakin Cardiomyopathy**
HS Vincent Chen, Chuanyu Wei, Indiana University, Indianapolis, USA

12:04 **Using Fibroblast Metabolism to Impact Inflammation**
Steve Jones, University of Louisville

* oral abstract presenter

12:30-2:00 — Lunch Seminar:

Ballroom C

Sponsor:

The Promise of Proteomics, Jennifer Van Eyk, PhD, Professor at Cedars-Sinai Medical Center

Rethinking what is possible with novel mass spectrometry technology for proteomics, Julian Saba, PhD, Thermo Fisher Scientific

Thursday, June 29

12:30-2:00 — **ISHR-NAS Council** — **Meeting Room K**

2:00-3:30 — **Workshop A:** — **Ballroom A**

Cutting Edge Technology Advances in Proteomics, Metabolomics, and Lipidomics

Moderators:
Ying Ge, UW-Madison; Peipei Ping, UCLA; Jennifer Van Eyk, Cedars-Sinai

Single Cell Analysis by Mass Spectrometry
John Yates, Scripps Research

Loosing Flexibility: Cardiac Adaptations to Type 2 Diabetes Observed with Multi-omics
Melanie White, University of Sydney

Combining Multidimensional Analyses & Machine Learning Approaches to Investigate Organ-Specific Lipidomic Changes
Erin Baker, University of North Carolina

Mapping of >5000 Proteins in Whole Tissue by a Micro-scaffold Assisted Spatial Proteomics (MASP) Strategy
Jun Qu, University of Buffalo

Open Discussion

2:00-3:30 — **Workshop B** — **Ballroom B**

Advancing Engineered Heart Tissue for Robust and Reproducible Results

Moderator: J Carter Ralphe, UW-Madison

Background/history of EHT development, potentials and pitfalls
Thomas Eschenhagen, University Medical Center Hamburg-Eppendorf (UKE)

Approaches to facilitate sarcomere structure & function of stem cell derived cardiomyocytes & engineered heart tissue
Mike Regnier, University of Washington

Mature iPSC-derived Cardiomyocytes – Elusive Goal or Good Enough?
Bjorn Knollmann, Vanderbilt University

Matrix and Remodeling in Engineered Human Myocardium for Heart Regeneration
Kareen Coulombe, Brown University

Disease modeling using human engineered heart tissue: Is a standard platform desirable? Attainable?
J Carter Ralphe, UW-Madison

Open Discussion

2:00-3:30 — **Workshop C:** — **Hall of Ideas EF**

Metabolic Crosstalk Between the Diseased Heart and Other Organs

Moderator: E Douglas Lewandwoski, Ohio State University

Reciprocal responses between peripheral organs and the pathologically stressed heart
E Douglas Lewandwoski, Ohio State University

The role of mitochondria in the crosstalk between the heart and the immune system
Rong Tian, University of Washington

Protective interorgan, intercellular, and intercompartmental metabolite shuttles in obesity
Peter Crawford, University of Minnesota

Open Discussion

3:30-5:00 — **Poster Session 2, Reception and Sponsor Exhibit** — **Ballroom D, Grand Terrace**

6:30-11:00 — **Reception and Gala Banquet followed by dessert and dancing (Grand Terrace)** — **Rooftop**

 * oral abstract presenter

Friday, June 30

Registration is open 6:30-12:00

7:00-8:00 — **JMCC Meet the Editors Breakfast** — **Ballroom C**

8:00-9:00 — **Lecture Hall**

MCI Leadership Award

Jennifer Davis, University of Washington

Unlocking the Secrets of Fibroblast Biology & Cardiac Tissue Homeostasis

Moderator: Nicole H Purcell, Huntington Medical Research Institutes

Sponsor: University of Wisconsin Cardiovascular Research Center

9:00-10:30 — **SESSIONS 16-18**

Session Sixteen — Sarcomere Microenvironment and Cytoskeletal Network — Ballroom A

Moderators:
Carl Tong, TAMU
Mei Methawasin, University Arizona

Department of Medicine, University of Wisconsin School of Medicine and Public Health

9:00 **Unraveling Giant Obscurin in the Heart: a Structural and Signaling Mediator**
Aikaterini Kontrogianni-Konstantopoulos, University of Maryland, Baltimore, USA

9:20 **Anti-Rbm20 Antisense Oligonucleotide Alleviates Diastolic Dysfunction in a Mouse Model of Metabolic HFpEF**
Mei Methawasin, Michael Radke,...Henk Granzier, University of Arizona, Tucson, USA

9:32 **Cardiac Mechano-Signaling and GSK-3b**
Jonathan Kirk, Loyola U. Chicago, USA

9:52 **Drug Discovery for Heart Failure Targeting Myosin-binding Protein C**
Thomas Bunch, Piyali Guhathakurta,...Brett Colson*, University of Arizona, Tucson, USA

10:04 **Disorders in the Cardiac Myocyte Microenvironment, Redox State and S-Glutathionylation of Sarcomere Proteins**
John Solaro, University of Illinois Chicago, USA

Session Seventeen — Cellular Therapy in Cardiac Regeneration — Ballroom B

Moderator:
Lei Yang, Indiana University
Wendy Crone, UW-Madison

Cedars Sinai Smidt Heart Institute

9:00 **Neonatal Heart Regeneration**
Jay Zhang, University of Alabama Birmingham, USA

9:20 **A Novel Small Molecule Augments Cardiomyocyte Cell Cycle Entry in Response to Direct Cell Cycle Stimulation through inhibition of p38α MAP Kinase**
Riham Abouleisa*, Jessica M Miller... Tamer Mohamed, Institute of molecular cardiology, U. of Louisville, USA

9:32 **Proliferation and Maturation - Implications for Cardiac Tissue Engineering**
Brenda Ogle, University of Minnesota, Minneapolis, USA

9:52 **A lncRNA LIPTER Mediated Intramyocyte Lipid Droplet Transport System in the Human Heart**
Juli Liu, Shen Liu,...Lei Yang*, Indiana University, Indianapolis, USA

10:04 **Improving Cardiac Remuscularization through Effective Vascularization**
Sara S. Nunes de Vasconcelos, University of Toronto, Canada

* oral abstract presenter

Friday, June 30

Session Eighteen — Understanding HFpEF to Advance Therapies — Hall of Ideas of EH

Moderator:
Steven Houser, Temple University
Federica del Monte, Medical University of South Carolina

9:00 **HFpEF: Where We Are Today**
Joseph Hill, UT Southwestern, Dallas, USA

9:20 **eNOS Signaling Mediates Cardiac Dysfunction in a Heart Failure Mouse Model Linked to Obesity and Volume Overload**
Nisha Patel, Shamim Chowdhury,...Paola Rosas*, University of Illinois at Chicago, USA

9:32 **Inflammation-Resolution Signaling in HFrEF and HFpEF**
Ganesh Halade, University of South Florida, Tampa, USA

9:52 **Hexokinase-1 Mitochondrial Dislocation and Hyper-O-GlcNAcylation in the Pathogenesis of Heart Failure With Preserved Ejection Fraction**
Spencer Camp, Yuki Tatekoshi,...Hossein Ardehali, Northwestern University, Chicago, USA.

10:04 **Rethinking Myocardial Disease in Human HFpEF from the Ground Up**
David Kass, Johns Hopkins University, Baltimore, USA

10:30-11:00 **Coffee Break** — Ballroom C

11:00-12:30 **SESSIONS 19-21**

Session Nineteen — Heart Dysfunction Uncovered by Proteomics — Ballroom A

Moderator:
Melanie White, University of Sydney
Matthew Brody, University of Michigan

11:00 **The Proteomic Landscape of Dilated Cardiomyopathy: Assessing the Effect of Comorbidities, Medications and Mutations**
Manuel Mayr, King's College London, United Kingdom

11:20 **Regulation of Atrial Natriuretic Peptide Secretion by Palmitoylation and Modulation of the Rab3 GTPase Cycle in Cardiac Myocytes**
Kobina Essandoh, Arasakumar Subramani,...Matthew Brody*, University of Michigan, Ann Arbor, USA

11:32 **Post-Transcriptional Regulation of Cardiac Proteomes in Development, Aging, and Disease**
Maggie Lam, University of Colorado Anschutz, Aurora, USA

11:52 **Deep-coverage Proteomics using a Photocleavable Surfactant Reveals Extracellular Matrix Alterations in Ischemic Cardiomyopathy**
Kevin Buck*, Morgan Mann,...Paul Tang, UW-Madison, USA

12:04 **Quantitative Interactome Studies Reveal New Molecular-level Insight on Heart Failure**
James Bruce, University of Washington, Seattle, USA

* oral abstract presenter

Friday, June 30

Session Twenty — Novel Approaches to Cardiac Regeneration — Ballroom B

Moderator:
Timothy Kamp, UW-Madison
Marlin Touma, UCLA

Stem Cell & Regenerative Medicine Center
UNIVERSITY OF WISCONSIN-MADISON

11:00 **Transcriptional Control of Heart Repair and Regeneration**
Eric Small, University of Rochester, Rochester, USA

11:20 **Hexokinase 3 Regulates Macrophage Polarization and Cardiac Remodeling Likely through Serin Biosynthesis Pathway**
Amir Mahmoodzadeh*, Mohammad Keykhaei, Hossein Ardehali, Northwestern University, Chicago, USA

11:32 **Cardiac Innervation During Disease and Regeneration**
Ahmed Mahmoud, UW-Madison, USA

11:52 **Hydrogen Sulfide Biosynthesis and Signaling Underpins Heart Failure with Preserved Ejection Fraction**
Jake Doiron*, Zhen Li...David Lefer, Louisiana State University Health Sciences Center, New Orleans, USA

12:04 **Genome Edited Cardiomyocyte Therapy to Re-Energize the Failing Heart**
Charles Murry, University of Washington, Seattle, USA

Session Twenty-one — Pathways Regulating Heart Biology — Hall of Ideas EH

Moderators:
Raja Namakkal, University of Alabama Birmingham
Paul Tang, University of Michigan

ELSEVIER JMCC JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY

11:00 **Protein Translation Control in Cardiac Hypertrophy**
Yibin Wang, Duke NUS, Singapore

11:20 **The Glucocorticoid-clock Axis Rescues Diabetic Heart Metabolism**
Hima Bindu Durumutla, Fadoua El Abdellaoui Soussi,... Mattia Quattrocelli*
Division of Molecular Cardiovascular Biology, Heart Institute, Cincinnati Children's Hospital Medical Center, USA

11:32 **Nicotine Compromises the Heart to Injury by Altering PHLPP Isoforms**
Nicole Purcell, HMRI, Los Angeles, USA

11:52 **Translational Control in Adult Cardiomyocytes**
Keita Uchida*, Emily Scarborough, Benjamin Prosser
U. of Pennsylvania Perelman School of Medicine, Philadelphia, USA

12:04 ***Post-transcriptional Regulation in Cardiometabolic Disease***
Chen Gao, UCLA, Los Angeles, USA

* oral abstract presenter

12:30-1:45 — Lunch Seminar — Ballroom C

Sponsor: Agilent

Mass spectrometry-based Quantitative Proteomics to Inform Cardiovascular Therapeutic Development
Ian A. Blair, PhD, A.N. Richards Professor of Systems Pharmacology and Translational Therapeutics, University of Pennsylvania, Philadelphia PA

Complementary Nature Of Targeted Multi-Omics Workflows: Improving Reproducibility of Sample Prep Automation, Instrument Optimization and Robustness, Sensitivity, Precision, Linearity, with Simplification of Annotation
John Sausen – Agilent Technologies - Americas, Director of Strategic Initiatives, Mass Spectrometry

Friday, June 30

1:45-3:15 **SESSIONS 22-24**

Session Twenty-two — Epigenetics Drives Cardiovascular Disease — Ballroom A

Moderators:
Jop van Berlo, University of Minnesota
Timothy McKinsey, University of Colorado Anschutz

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

1:45 **Chromatin as a Mechanosensor**
Tom Vondriska, UCLA, Los Angeles, USA

2:05 **Epitranscriptomic Dysregulation of the Microtubule-autophagy Axis Drives Ponatinib-induced Cardiotoxicity**
Zhenbo Han, Gege Yan,... Sang-Ging Ong
University of Illinois at Chicago, USA

2:17 **FTO and m6A in mRNA Metabolism in Heart Failure**
Susmita Sahoo, Mount Sinai

2:37 **PPP1R1B-lncRNA Regulates Cardiomyocytes Differentiation Via Epigenetic Modulation of TBX5 Promoter**
Marlin Touma, University of California Los Angeles, Los Angeles, USA

2:49 **Lysine Methyltransferases Regulate Cardiac Physiology**
Sarah Franklin, University of Utah, Salt Lake City, USA

Session Twenty-three — Molecular Basis of Genetic Cardiomyopathies — Ballroom B

Moderators:
Moderator: David Barefiled, Loyola University
J. Carter Ralphe, UW-Madison

Cedars Sinai
Smidt Heart Institute

1:45 **Sarcoplasmic Biomolecular Condensates are a New Cause of Cardiomyopathy and Heart Failure**
Wei Guo, UW-Madison, USA

2:05 **MG53 is a Double Sword in Cardiac Pathological Remodeling**
Biyi Chen, Duane Hall*,...Long-Shang Song Depart. of Internal Medicine, Carver College of Medicine, U. of Iowa

2:17 **Cardiac Organoids for Hypertrophic Cardiomyopathy**
Sakthivel Sadayappan, University of Cincinnati

2:37 **Integrated Proteomic Analyses of In Vitro Hypertrophic Cardiomyopathy Models**
Kalina Rossler*, Willem deLange,...Ying Ge, University of Wisconsin-Madison, Madison, USA

2:49 **Early Onset Diastolic Dysfunction in HCM: Novel Mechanisms and Potential Targets**
Jill Tardiff, University of Arizona, Tuscon, USA

Session Twenty-four — Activating Cardiac Repair — Hall of Ideas EH

Moderators:
Ronald Vagnozzi, University of Colorado
Nipavan Chaimvimonvat, UC-Davis

UNIVERSITY OF WISCONSIN
Cardiovascular Research Center

1:45 **Maturation of Pluripotent Stem Cell-Derived Cardiac Grafts**
Michael Laflamme, University of Toronto, Canada

2:05 **Protein Kinase A is a Master Regulator of Physiological and Pathological Hypertrophy**
Yingyu Bai, Xiaoying Zhang,...Xiongwen Chen*
Department of Biopharmaceuticals, School of Pharmacy, Tianjin Medical University, Tianjin, China.

 * oral abstract presenter

Friday, June 30

Session Twenty-four — **Hall of Ideas EH**

2:17 **Activating Cardiac Regeneration Program by Interleukin11**
Junsu Kang, UW-Madison, USA

2:37 **Preventing Site-specific Calpain Cleavage of Junctophilin-2 Protects against Stress-induced E-C Coupling Dysfunction and Heart Failure in Mice**
Jinxi Wang, Grace Ciampa,...Long-Sheng Song*, University of Iowa, Iowa City, USA

2:49 **Deciphering the Code for Cardiomyocyte Proliferation**
Tamer Mohamed, University of Louisville, USA

3:15-3:30 **Refreshments** — **Lecture Hall**

3:30-4:30 — **Lecture Hall**
President's Distinguished Lecture
Jennifer Van Eyk, Cedars Sinai
Proteomics: Finding Unexpected Biology and Changing Paradigms
Moderator: Jolanda van der Velden, Amsterdam UMC

Sponsor: International Society for Heart Research

4:30-4:40 **ISHR-NAS 2024** — **Lecture Hall**
Peipei Ping, UCLA and Jennifer Van Eyk, Cedars Sinai

4:40-4:45 **Closing** — **Lecture Hall**
Ying Ge, UW-Madison, Conference Co-Chair

5:00-9:00 **Women's Initiative Social Event**

* oral abstract presenter

Poster Session
Wednesday, June 28
5:30-7 p.m.

1. SNAP23 is a Novel Regulator of Autophagy in Cardiomyocytes
Sean Noudali, Scott Hahn, Christopher Glembotski, Erik Blackwood
The University of Arizona, Phoenix, USA

2. Alternative Polyadenylation of SCN5A Generates a Novel N-terminal NaV1.5 Microprotein
Nathan Witmer, Jared McLendon, Xiaoming Zhang, Colleen Stein, Jin-Young Yoon, Barry London
University of Iowa, Iowa City, USA

3. Recombinant Expression System for High-throughput Production and Characterization of Imperacalcin as a Potential Therapeutic Agent for RyR-Associated Arrhythmias
Wenxuan Cai, Carmen Valdivia, Li Xiao, Filip Van Petegem, Héctor Valdivia
University of Wisconsin - Madison, Madison, WI, USA.

4. Mitochondrial ROS and Calcium Alternans in Atrial Myocytes
Yuriana Oropeza-Almazán, Lothar A. Blatter
Rush University, Chicago, USA

5. A Missense Mutation in RYR2 Leads to Arrhythmogenic Cardiomyopathy in A Rabbit Model
Jingjing Zheng, Holly Dooge, Jean-Pierre Benitah, Ana Gómez, Héctor Valdivia, Francisco Alvarado
Department of Medicine, Division of Cardiovascular Medicine, and Cardiovascular Research Center, University of Wisconsin-Madison School of Medicine and Public Health, Madison, USA.

6. Leucine-rich Repeat-containing Protein 10 Potentiates L-type Calcium Current Through Short-N-terminus and Long-N-terminus Isoforms of CaV1.2
Natthaphat Siri-Angkul, Marites Woon, Zachery Gregorich, Youngsook Lee, Timothy Kamp
Department of Medicine, University of Wisconsin-Madison, Madison, WI, USA.

7. Compensatory Control of Associated Ion Channel mRNAs Regulates Cardiac Excitability
Erick Ríos Pérez, Fang Liu, Margaret Jameson, Gail Robertson
University of Wisconsin Madison, Madison, USA

8. Structure-Function Analysis of Two Novel Calcins Based on a Transcriptomic Comparison of East Asian Scorpions
Li Xiao, Xiaoyu Hua, Jun Li, Fengling Yang, Songyu Gao, Carmen R Valdivia, Jinchi Yao, Wenxuan Cai, Zhixiao Yang, Héctor H Valdivia, Liang Xiao
epartment of Forensic Toxicological Analysis, West China School of Basic Medical Sciences and Forensic Medicine, Sichuan University, Chengdu, China.

9. Ulcerative Colitis-Induced Cholinergic Hypersensitivity Increases the Risk for Atrial Arrhythmia
Andres Pelaez, Carlos Pereira, Hiroki Kittaka, Kathrin Banach
Rush University, Chicago, USA

Poster Session
Wednesday, June 28
5:30-7 p.m.

10. Delineate the Postnatal Cardiomyocyte maturation using single-nucleus RNA-seq
Haofei Wang, The University of North Carolina at Chaple Hill, Chapel Hill, USA

11. Withdrawn

12. Regression of Post-prandial Cardiac Hypertrophy in the Burmese Python is Mediated by FOXO1-dependent Autophagy
Thomas Martin, Stephen Langer, Dakota Hunt, Leslie Leinwand,
University of Colorado Boulder, Boulder, USA

13. 4E-BP3 Deficiency Ameliorates the Development of Autoimmune Myocarditis in Mice.
Siqi Li, DongZhu Xu, Kazuko Tajiri, Nobuyuki Murakoshi
Department of Cardiology, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan.

14. Sustained but Decoyed Activation of the JAK1-STAT Pathway by Expression of Misfolded Proteins Exacerbates Proteotoxicity
Mingqi Cai, Bo Pan, Peng Xiao, Megan Lewno, Xuejun Wang
Division of Basic Biomedical Sciences, University of South Dakota Sanford School of Medicine, Vermillion, USA

15. Genetic Correction of Impaired Ser14-RPN6 Phosphorylation Protects against Proteotoxicity in Mice
Liuqing Yang, Nirmal Parajuli, Jose Lira, Jinbao Liu, Xuejun Wang
Division of Basic Biomedical Sciences, University of South Dakota Sanford School of Medicine, Vermillion, USA.

16. Age-related Effects of Doxorubicin Exposure on Cardiac Function in Rats
Ashley Smuder, Imtiaz Dowllah, Branden Nguyen, University of Florida, Gainesville, USA

17. Psychosocial Stress Exacerbates Doxorubicin- induced Cardiotoxicity in Adult Mice
Mary Raphel Daniel, Marianne Grant, Maria Razzoli, Alessandro Bartolomucci, Beshay Zordoky
Dept of Experimental and Clinical Pharmacology, College of Pharmacy, University of Minnesota, Minneapolis, USA.

18. Cardiomyocyte-restricted Overexpression of Rpn6/Psmd11 Increases Myocardial Proteasome Peptidase Activities in Mice
Jack Sternburg, Wyatt Windhorst, Daniel Finley, Xuejun Wang
University of South Dakota, Vermillion, USA.

Poster Session
Wednesday, June 28
5:30-7 p.m.

19. Phosphodiesterase 10A Inactivation Protects Against Doxorubicin-induced Cardiotoxicity and Concomitantly Inhibits Tumor Growth
Vivian Si Chen, Jiawei Chen, Wenting Du, Hangchuan Shi, Han Yu, Sparsh Kumar, Chen Yan
University or Rochester, Rochester, USA.

20. Sphingomyelinase-Induced ROS Production Suppresses Cardiac Performance
Roman Y. Medvedev, Daniel G.P. Turner, Alexey V. Glukhov
University of Wisconsin Madison, Madison, USA

21. Previous Cardiac Injury is a Key Factor in Immune Check Point Inhibitors Cardiotoxicity: Implications in Mortality, Acute Myocarditis, and Clinical Applications.
Nestor Rubio-Infante, Elena C. Castillo, Martin Ramos, Hugo Alves-Figueiredo, Daniel Salas-Treviño, Adolfo Soto-Domínguez, Omar Lozano, Gerardo García-Rivas, Guillermo Torre-Amione
Tecnologico de Monterrey, Centro de Investigación Biomédica and The Institute for Obesity Research, Hospital Zambrano Hellion, TecSalud, 66278, San Pedro Garza García, Mexico.

22. Decoding the Epigenetic Language of Gut Microbiome
Jessica Han, Wisconsin Institute for Discovery, University of Wisconsin-Madison, Madison, USA

23. The Histone Methyltransferase SMYD5 Regulates Cardiac Inflammation via Histone H4K20 Trimethylation
Samuel Hickenlooper, Ryan Bia, University of Utah, Salt Lake City, USA

24. Identification of miRNAs that Regulate Cancer Signaling in a Reductive Stress-mediated Proteotoxic Cardiac Disease
Ahila Arulmani, Arun Jyothidasan, John Kofi Afortude, Ashvanthi Raveendran, Aniqa Sayed, Sini Sunny, Vivek Nanda, Sooryanarayana Varambally, Rajasekaran Namakkal-Soorappan
University of Alabama at Birmingham, Birmingham, USA.

25. SMYD1 Binds and Methylates Adenylosuccinate Synthase in Cardiomyocytes and Regulates Purine Metabolism.
Magnus Creed, Christopher Tracy, Marta Szulik, Samuel Hickenlooper, Ryan Bia, Kathryn Davis, Sarah Franklin, University of Utah, Salt Lake City, USA

26. Withdrawn

27. Enhanced CaMKII Activity and IP3 Signaling in Heart Failure Increase Risk of Atrial Alternans
Giedrius Kanaporis, Lothar Blatter, Rush University, Chicago, USA

Poster Session
Wednesday, June 28
5:30-7 p.m.

28. Ulcerative Colitis Induced Downregulation of Cardiac Sodium Channels and Junctophilin-2 Leads to Changes in Ventricular Excitation-contraction Coupling
Carlos Pereira, Andres Pelaez, Hiroki Kittaka, Kathrin Banach
Rush University Medical Center, Chicago, USA

29. ERK/MAPK Inhibition Exerts Therapeutic Effects on TTNtv Cardiomyopathy in Zebrafish
Weiyue Wang, Mathew Kowlow, Feixiang Yan, Ping Zhu, Xiaolei Xu, Mayo Clinic, Rochester, USA

30. Molecular Mechanism of the South Asian-Specific Polymorphic MYBPC3Δ25bp Variant in Hypertrophic Cardiomyopathy
Kalyani Ananthamohan, James W McNamara, Parth N Patel, Mohammad Bohlooly, Katja Madeyski-Bengtson, Ralph Knöll, Jonathan G Seidman, Christine E Seidman, Anil G Jegga, Sakthivel Sadayappan, Department of Internal Medicine, Division of Cardiovascular Health and Disease, University of Cincinnati College of Medicine, Cincinnati, OH, USA.

31. 2TRPM7 Kinase Upregulation in Hypomagnesemia Induces IL-1ß Production from Both Macrophages and Cardiomyocytes, Contributing to Diastolic Dysfunction
Man Liu, Salman Ali, Hong Liu, Yugene Guo, Gyeoung-Jin Kang, Feng Feng, Samuel C. Dudley
Cardiovascular Division, Lillehei Heart Institute, Dept. of Medicine, University of Minnesota, Minneapolis, USA

32. Development and Validation of a Diagnostic Model For Transthyretin Cardiac Amyloidosis
Syed Bukhari, Zubair Bashir, Temple University, Philadelphia, USA

33. Characterization of Atrial Myopathy in Mice via Speckle-tracking Echocardiography and Atrial Pacing
Dylan Gyberg, Michael Zhang, Naixin Zhang, Chastity Healy, Hong Liu, Samuel Dudley, Timothy O'Connell, University of Minnesota, Minneapolis, USA

34. Troponin I Tyrosine 26 Phosphorylation Improves Relaxation and is Beneficial During Pathological Diastolic Dysfunction
Lorien Salyer, Hussam Salhi, Elizabeth Brundage, Vikram Shettigar, Benjamin Templeton, Eaman Abay, Narasimham Parinandi, Timothy McKinsey, Kathleen C. Woulfe, Mark T. Ziolo, Brandon J. Biesiadecki, The Ohio State University, Columbus, USA.

35.Deep Phenotyping of Voluntary Wheel Running in Cardiometabolic Heart Failure with Preserved Ejection Fraction
Timothy Allerton, Heather Quiriarte, Zhen Li, David Lefer
Pennington Biomedical Research Center, Baton Rouge, USA

Poster Session
Wednesday, June 28
5:30-7 p.m.

36. Myocardial Ubiquitin-proteasome System Performance is Impaired in a Mouse Model of Heart Failure with Preserved Injection Fraction (HFpEF)
Jose Lira, Andrew Guymon, Liuqing Yang, Jack Sternburg, Samiksha Giri, Xuejun Wang
University of South Dakota Sanford School of Medicine, Vermillion, USA

37. Endothelial Cell Cystathionine Gamma Lyase Preserves Cardiovascular Function in Heart Failure with Preserved Ejection Fraction Through Modulating H2S Production
Huijing Xia, Zhen Li, Kyle B. LaPenna, Jake E. Doiron, Thomas E. Sharp III, Karl H. Moles, John W. Elrod, Josef Pfeilschifter, Karl-Friedrich Beck, Traci T. Goodchild, David J. Lefer
Cardiovascular Center of Excellence, Louisiana State University Health Sciences Center, New Orleans, USA.

38. Defining the Cardiac Molecular Signatures of HFpEF Utilizing Systems Biology Approaches
Andrew Gibb, Kyle LaPenna, Ryan Gaspar, Jake Doiron, Zhen Li, Huijing Xia, Thomas Sharp, Traci Goodchild, David Lefer, John Elrod
Cardiovascular Research Center, Department of Cardiovascular Sciences, Lewis Katz School of Medicine at Temple University, Philadelphia, USA.

39. Diastolic Calcium Handling is Compromised due to Deficient Mitochondrial Bioenergetics in a Murine Model of Heart Failure with Preserved Ejection Fraction (HFpEF)
Abraham Méndez-Fernández, Leandro Agustín Díaz-Zegarra, Luis Alberto Luévano-Martínez, Ángel Eduardo Fernández-Mora, Alejandro Ernesto Aiello, Víctor Manuel Treviño-Alvarado, Gerardo de Jesús García-Rivas, Noemí García-Ramírez, Bianca Daniela Nieblas-León
Tecnológico de Monterrey, Centro de Investigación Biomédica and The Institute for Obesity Research, Hospital Zambrano Hellion, TecSalud, Monterrey, Nuevo León, Mexico.

40. PKA-mediated Phosphoregulation and Activation of 26S Proteasomes Protects Against Cardiac Hypertrophy and Heart Failure Induced by Systolic Overload
Md Salim Ahammed, Penglong Wu, Liuqing Yang, Jack O. Sternburg, Huiyun Liang, Faqian Li, Jinbao Liu, Xuejun Wang
Division of Basic Biomedical Sciences, University of South Dakota Sanford school of Medicine, Vermillion, USA.

41. A Novel Mediator of Cardiac Hypertrophy and Heart Failure - Activation of YAP via O-GlcNAcylation in the Heart
Priya Umapathi, Gabriel Lopez-Cecetaite, Johns Hopkins, Baltimore, USA

42. Heart Slice-Based Bioreactor Co-Culture System to Study Cardio-Oncology
Jessica Miller, Qinghui Ou, Riham Abouleisa, Xian-Lian Tang, Abou Bakr Salama, Ayman El-Baz, Guruprasad Giridharan, Tamer Mohamed, University of Louisville, Louisville, USA.

Poster Session
Wednesday, June 28
5:30-7 p.m.

43. Ubiquitin Ligase Fbxo36 Dysregulation Under Cardiac Specific Proteotoxic Stress
Mark Bouska, Mingqi Cai, Yu Xing, Erliang Zeng, Xiang Gao, Xuejun Wang
University of South Dakota, Vermillion, USA.

44. Neutral Sphingomyelinase Mediates Phenotypes of Pathological Cardiac Remodeling
Daniel G.P. Turner, Willem J. De Lange, Yanlong Zhu, Ying Ge, Timothy J. Kamp, J. Carter Ralphe, Alexey V. Glukhov, University of Wisconsin - Madison, Madison, USA

45. Development of a Semi-Automated Workflow to Improve Data Parameters for Cardiovascular Proteomics Experiments
Milton Amaya, Robert Ludwig, Julianne Marsh, Jordan Currie, Veronica Hidalgo, Edward Lau, Maggie Lam, University of Colorado at Anschutz Medical Campus, Aurora, USA

46. Membrane-stabilizing Copolymers Enhance Dystrophic Skeletal Muscle Function and Confer Protection Against Isoproterenol-induced Death in the mdx Mouse
Joseph Quick, Dongwoo Hahn, John Bauer, Joseph Hassler, Brian Thompson, Benjamin Hackel, Timothy Lodge, Frank Bates, Joseph Metzger, U. of Minnesota-Twin Cities, Minneapolis, USA

47. A Novel Translational Two-hit Murine Model of Heart Failure with Preserved Ejection Fraction to Study Sex-differences
Juliana Mira Hernandez, Erin Y. Shen, Christopher Y. Ko, Emily R. Spencer, Daria Smoliarchuk, Julie Bossuyt, Donald M. Bers, Bence Hegyi, University of California-Davis, Davis, USA

48. Methylglyoxal Glycation Competes with Ubiquitination at the Cardiac Sarcomere, Disrupting Function
Christine Delligatti, Michaela Door, Maria Papadaki, Thomas Martin, Jonathan Kirk
University of California-Davis, Davis, USA

49. Myosin Binding Protein H-like Nonsense Mutations Show Differential Mechanisms of Degredation and Sarcomere Incorporation
Alejandro Alvarez-Arce, Lucas Wittenkeller, Hope Burnham, David Barefield
Loyola University Chicago, Maywood, USA

50. A Tachypacing Canine Model of Atrial Fibrillation Reveals Sarcomere Protein Proteolysis and Contractile Dysfunction of Atrial Cardiomyocytes
Hannah Cizauskas, Azaria Panni, Kelly Araujo, Seby Edassery, Jonathan Kirk, Rishi Arora, David Barefield, Loyola University Chicago, Maywood, USA.

51. Actin-myosin Targeted Drug Discovery Yields Actin-binding Compounds that Specifically Target Cardiac Muscle
Scout Allendorf, Anna Carter, Chandini Nair, Andrew Thompson, David Thomas, Piyali Guhathakurta, University of Minnesota, Minneapolis, USA

Poster Session
Wednesday, June 28
5:30-7 p.m.

52. BAG3 Differentially Responds to Acute Versus Chronic Stress via a Post-Transcriptional Mechanism
Laura Sherer, Thomas Martin, Johnathan Kirk, Loyola University Chicago, Maywood, IL, USA

53. Mapping Advanced Glycation End-product Modification of the Cardiac Troponin Complex in Diabetes
Johannes Janssens, Jennifer Van Eyk, Kimberley Mellor, Lea Delbridge
University of Melbourne, Melbourne, Australia.

54. Sarcomere Localization of Glycogen Synthase Kinase 3β is Regulated by Protein Tyrosine Phosphatase 1B
Michaela Door, Marisa Stachowski-Doll, Yan Sun, Christine Delligatti, Laura Sherer, Maria Kontaridis, Jonathan Kirk, Loyola University Chicago, Maywood, USA.

55. Expression of Skeletal Myosin Binding Protein-C in Smooth Muscle Cells
Mustafa Ozdemir, Taejeong Song, Mark Ericksen, Sakthivel Sadayappan
University of Cincinnati, Cincinnati, USA

56. Evaluating Sarcomere Incorporation of MYBPHL and MYBPC3 Missense Mutations
Kelly Araujo, Lucas Wittenkeller, Alejandro Alvarez-Arce, David Barefield
Loyola University Chicago, Chicago, USA

57. Examining the Role of Myofilament Protein MyBP-HL in Cardiac Development and Conduction System Function
Hope Burnham, Geena Fritzmann, David Barefield, Loyola University Chicago, Chicago, USA

58. Cardiomyocyte External Mechanical Unloading Activates Modifications of α-actinin Differently from Sarcomere-originated Unloading
Christopher Solís, Chad M. Warren, Kyle Dittloff, Elisabeth DiNello, Brenda Russell, R. John Solaro
University of Illinois at Chicago, Chicago, USA

Poster Session
Thursday, June 29
3:30-5 p.m.

59. HuR as a Mediator of Cardiac Fibroblast Activity
Sharon Parkins, Lisa C. Green, Sarah R. Anthony, Myc McGuinness, Samuel Slone, Onur Kanisicak, Michael Tranter, University of Cincinnati, Cincinnati, USA

60. Adipocyte Enhancer Binding Protein 1 as a Novel Therapeutic Target to Combat Fibrosis in Heart Failure
Thirupura S. Shankar, Georgiy Polishchuk, Ty Lunde, Joeseph Visker, Rana Hamouche, Jing Ling, Dallen Calder, Frank Sachse, Sutip Navankasattusas, Craig Selzman
University of Utah, Salt Lake City, USA

61. Identifying Molecular and Functional Similarities and Differences between Human Primary Cardiac Valvular Interstitial Cells and Ventricular Fibroblasts
Martha Floy, Fathima Shabnam, Sean Palecek, University of Wisconsin-Madison, Madison, USA

62. mTORC1 Regulates the Metabolic Switch of Postnatal Cardiomyocytes From Proliferation to Maturation
Wyatt Paltzer,University of Wisconsin-Madison, Madison, USA

63. Generation of More Mature hESC-derived Cardiomyocytes with Reduced Arrhythmogenicity to Facilitate Safe and Efficient Regenerative Therapy
Arash Pezhouman, Ngoc Nguyen, James Engel, Alexander J Sercel, Thang L Nguyen, Douglas J Chapski, Thomas M Vondriska, Michael A Teitell, Reza Ardehali
Baylor College of Medicine, Houston, USA.

64. Deoxy-ATP Producing hPSC-derived Cardiomyocytes Improve Cardiac Function in Chronically Infarcted Hearts
Michael Regnier, Charles Murry, Ketaki Mhatre, University of Washigton, Seattle, USA.

65. Priming post-mitotic P7 Neonatal Cardiomyocytes with an HCN Channel Inhibitor Enhances G2/M Phase Entry Following Cell Cycle Induction
Marc Dwenger, Riham Abouleisa, Abo Bakr Salama, Qinghui Ou, Tamer Mohamed
University of Louisville, Louisville, USA

66. MBNL1 Regulates Programmed Postnatal Switching between Regenerative and Differentiated Cardiac States
Logan Bailey, Darrian Bugg, Isabella Reichardt, Desirée Ortaç, Jagadambika Gunaje, Amy Martinson, Richard Johnson, Michael MacCoss, Tomoya Sakamoto, Daniel Kelly, Michael Regnier, Jennifer Davis, University of Washington, Seattle, USA.

Poster Session
Thursday, June 29
3:30-5 p.m.

67. Maturation-guided Gene-editing of Human Pluripotent Stem Cell-derived Cardiomyocytes for Cardiac Cell Therapy
Silvia Marchiano, Kenta Nakamura, Hans Reinecke, Lauren Neidig, Shin Kadota, Michael Lai, Filippo Perbellini, Xiulan Yang, Jordan Klaiman, Leslie Blakely, Elaheh Karbassi, Aidan Fenix, Faith Kalucki, Jennifer Potter, Bjorn Knollmann, Lil Pabon, Steve Kattmann, R. Scott Thies, Nathan Sniadecki, W. Robb Maclellan, Alessandro Bertero, Charles Murry, University of Washington, Seattle, USA.

68. Identifying Novel Cardiac Regeneration Enhancers by Utilizing Computational Analyses and Transgenic Assays
Ian Begeman, Steffani Manna, Shikha Vashisht, Cecilia Winata, Junsu Kang
Department of Cell and Regenerative Biology, School of Medicine and Public Health, University of Wisconsin–Madison, Madison, USA.

69. Linking the Genetic Variants and Altered Protein PTM Landscape in Cardiovascular Diseases via Artificial Intelligence
Yu Yan, Raine Soriano, Peipei Ping, Alexander Pelletier, Ding Wang, UCLA, Los Angeles, USA

70. A Knowledge Graph Approach to Elucidate the Role of Organellar Pathways in Disease via Biomedical Reports
Alexander Pelletier, Dylan Steinecke, Dibakar Sigdel, Irsyad Adam, J. Harry Caufield, Vladimir Guevara-Gonzalez, Joseph Ramirez, Aarushi Verma, Kaitlyn Bali, Katherine Downs, Wei Wang, Alex Bui, Peipei Ping, University of California, Los Angeles, Los Angeles, USA

71. Evaluation of Multiple Extraction Methods for the Analysis of Human Heart Metabolites
Melissa Pergande, Benjamin Wancewicz, Zhu Yanlong, Zhan Gao, Zhouxin Shi, Kylie Plouff, Ying Ge
UW-Madison, Madison, USA.

72. Withdrawn

73. Proximity Labeling Proteomics Uncovers Putative Mechanism of Disrupted RBM20 Nuclear Import in RBM20 Cardiomyopathy
Yanghai Zhang, Zachery Gregorich, Eli Larson, Ying Ge, Wei Guo
University of Wisconsin-Madison, Madison, USA

74. Comprehensive Characterization of Endogenous Phospholamban Proteoforms Enabled by Photocleavable Surfactant and Top-down Proteomics
Holden Rogers, David Roberts, Eli Larson, Jake Melby, Kalina Rossler, Austin Carr, Kyle Brown, Ying Ge, University of Wisconsin-Madison, Madison, USA

Poster Session
Thursday, June 29
3:30-5 p.m.

75. Dissecting the Effects of SARS-CoV-2 Infection on ProteinGglycosylation in the Human Heart
Sabarinath P Subramanian, Chase Castro, Jocelyn Rodriguez-Paar, Erin Schuette, Isaac Blakeslee, Melinda Wojtkiewicz, Fang Yu, Daniel Anderson, Rebekah L. Gundry
CardiOmics Program, Centre for Heart and Vascular Research; Division of Cardiovascular Medicine; and Department of Cellular and Integrative Physiology, University of Nebraska Medical Centre, Omaha, USA.

76. Multi-omic Discovery of Early Predictors and Modulators of hPSC-CM Differentiation Outcomes
Aaron Simmons, Elizabeth Bayne, Yanlong Zhu, Austin Feeney, Timothy Kamp, Ying Ge, Sean Palecek, University of Wisconsin - Madison, Madison, USA

77. Quantitative Proteomic Analysis Reveals Differences in Differentially Regulated Proteins Between Cardiopathic LMNA Variants
Corey Anderson, Kyle Brown, Ying Ge, Lee Eckhardt, University of Wisconsin-Madison, USA.

78. Distinct Effects of Cardiac Mitochondrial Calcium Uniporter Inactivation via EMRE Deletion in the Short and Long Term
Hector Chapoy Villanueva, Jackie A Stevens, Peyton M Nelson, Michael J Zhang, Saahiti Denduluri, Timothy D O'Connell, DeWayne Townsend, Julia C Liu, University of Minnesota, Minneapolis, USA

79. GJA1-20k Promotes Formation of Actin Envelopes around Mitochondria
Vu Nguyen, Jennifer Hunter, Daisuke Shimura, Robin Shaw
Nora Eccles Harrison Cardiovascular Research and Training Institute, University of Utah, Salt Lake City, USA.

80. MICU3 Regulates Mitochondrial Calcium and Overexpression of MICU3-induced Cardiac Hypertrophy
Barbara Roman, Junhui Sun, Robert Balaban, Elizabeth Murphy, NHLBI, Bethesda, USA

81. Differential Adaptation to Mitochondrial Ca2+ Overload in the Left and Right Ventricles
Jae Hwi Sung, Hector Villanueva, Kurt Prins, György Hajnóczky, Carmen Sucharov, Julia Liu
University of Minnesota, Minneapolis, USA.

82. The Mitochondrial Inner Membrane Protein TMEM65 Regulates NCLX-dependent Mitochondrial Calcium Efflux
Joanne F. Garbincius, Oniel Salik, Adam S. Mangold, Angelina D. Makhoul, Anna E. Schmidt, Dima Y. Khalil, Emma K. Murray, Michael P. Lazaropoulos, Dhanendra Tomar, John W. Elrod
Lewis Katz School of Medicine at Temple University, Philadelphia, USA.

Poster Session
Thursday, June 29
3:30-5 p.m.

83. Inflammation Exerts Deleterious Effects on Cardiomyocytes by Inhibiting α-ketoglutarate Dehydrogenase through Tristetraprolin in the Border Zone of Myocardial Infarction
Amir Mahmoodzadeh, Navid Koleiny, Ashley Akrami, Mohammad Keykhaei, Hossein Ardehali
Northwestern University, Chicago, USA.

84. The Rise in Mitochondrial Free Ca2+ During Ischemia is Suppressed but Not Eliminated by Germline Deletion of the Mitochondrial Ca2+ Uniporter (MCU) in Ex Vivo Perfused Mouse Hearts
Courtney Petersen, Junhui Sun, Kavisha Silva, Anna Kosmach, Robert Balaban, Elizabeth Murphy
NHLBI, Bethesda, USA.

85. The Role of Cyclophilin D Isomerase Activity in Regulating the Mitochondrial Permeability Transition Pore
Kevin M. Casin, Moises Bustamante, Georgios Amanakis, Junhui Sun, Chengyu Liu, Richard Kitsis, Elizabeth Murphy, NHLBI, Bethesda, USA.

86. Mitoregulin Microprotein Influences Mitochondrial Membrane Integrity and Myocardial Ischemia-reperfusion Injury
Colleen Stein, Xiaoming Zhang, Nathan Witmer, Edward Pennington, Saame Shaikh, Ryan Boudreau,
University of Iowa College of Medicine, Iowa City, USA.

87. Isocitrate Dehydrogenase 1 Regulates Cardiac Metabolic Adaptation during Oncometabolic stress
Kyoungmin Kim, Yaqi Gao, Brandon Faubert, Nathaniel Snyder, Ralph DeBerardinis, Anja Karlstaedt
Cedars Sinai Medical Center, Los Angeles, USA.

88. Mitochondrial CaMKII Drives Cardiometabolic Reprogramming
Kimberly Ferrero, Jonathan Granger, Elizabeth Luczak, Johns Hopkins University, Baltimore, USA

89. O-GlcNAcylation and Cardiometabolic Substrate Switch in Failing Hearts
Priya Umapathi, Gabriel Lopez-Cecetaite, Johns Hopkins, Baltimore, USA

90. Ischemia-induced Acidosis Contributed to Increase of Mitochondrial Matrix Free Ca2+
Junhui Sun, Courtney Petersen, Elizabeth Murphy, NHLBI, Bethesda, USA

91. Monitoring Mitochondrial Calcium During Simulated Ischemia Using a Genetically Encoded Calcium Lifetime Indicator
Yusuf Mastoor, Christian Combs, Barbara Roman, Elizabeth Murphy
National Heart, Lung, and Blood Institute, Bethesda, USA

Poster Session
Thursday, June 29
3:30-5 p.m.

92. DWORF Overexpression in the Heart Results in Enhanced Mitochondrial Function
Omar Brito-Estrada, Aaron Gibson, Catherine A. Makarewich
Cincinnati Children's Hospital, Cincinnati, USA.

93. Defining MICU Regulation of Mitochondrial Calcium Uptake
Henry Cohen, Anya Wilkinson, Jennyfer Ngo, John Elrod
Lewis Katz School of Medicine at Temple University, Philadelphia, USA

94. ETFDH, a Novel Regulator of Mitochondrial Bioenergetics in Heart Failure
Akhil Baby, Mark Ericksen, Sankar Natesan, Taejeong Song, Sakthivel Sadayappan
University of Cincinnati College of Medicine, Cincinnati, USA.

95. HuR Mediates Calcium-driven Thermogenesis in Brown Adipose Tissue
Adrienne Guarnieri, Sarah Anthony, Michael Tranter, University of Cincinnati, Cincinnati, USA.

96. Genetic Modulation of Mitochondrial Calcium Uptake Sensors (MICU1/2) Delays Heart Failure Progression
Candice Johnson, Rajika Roy, Nadina Latchman, Joanne Garbincius, Gyorgy Hajnoczky, John Elrod
Temple University, Philadelphia, USA.

97. Elamipretide Improves Cardiac Mitochondrial Function in Patients with Dilated cardiomyopathy
Mariana de Vito, Raleigh Jonscher, Genevieve Sparagna, Kathryn Chatfield, Amrut Ambardekar, Carmen Sucharov, Shelley Miyamoto, Brian Stauffer
University of Colorado Anschutz Medical Campu, Aurora, USA.

98. Disruption of RS Domain Function in RBM20 is Causative in Dilated Cardiomyopathy
Yanghai Zhang, Zachery Gregorich, Yujuan Wang, Camila Braz, Jibin Zhang, Yang Liu, Peiheng Liu, Nanyumuzi Aori, Timothy Hacker, Henk Granzier, Wei Guo
University of Wisconsin-Madison, Madison, USA.

99. Withdrawn

100.Environmental Regulation of LncRNAs In Congenital Heart Defects
Marlin Touma, University of California Los Angeles, Los Angeles, USA

101. Further Delineation and Exploration of the Cardiac MicroRNA-target Interactome
Bailey Peck, Jared McLendon, Ryan Boudreau
University of Iowa College of Medicine, Iowa City, USA

102. RNA Binding Protein CSDC2 is Required for Metabolic and Cardiac Stress Responses
Jared McLendon, Xiaoming Zhang, Ryan Boudreau, University of Iowa, Iowa City, USA.

Poster Session
Thursday, June 29
3:30-5 p.m.

103. Master Splicing Regulator Rbpms2 is not Required for Murine Cardiac Development or Contractile Function
Jared McLendon, Xiaoming Zhang, Nathan Witmer, Ryan Boudreau
University of Iowa, Iowa City, USA

104. Post-translational Modification-dependent Prolongation of Autonomous CaMKIIδ Conformation in Live Cardiac Myocytes
Christopher Ko, Juliana Mira Hernandez, Kenneth Ginsburg, Leann Le, Daria Smoliarchuk, Sonya Baidar, Chidera Alim, Jakub Tomek, Jody Martin, Donald Bers
University of California, Davis, Davis, USA.

105.Translational Control of SND1 Governs Endothelial Function during Stress
Zhenbo Han, Gege Yan, Jordan Jousma, Sarath Babu Nukala, Mehdi Amiri, Negar Tabatabaei, Youjeong Kwon, Won Hee Lee, Soroush Tahmasebi, Sang-Ging Ong
University of Illinois at Chicago, Chicago, USA.

106. eIF4G2 Is a Regulator of Pro-Fibrotic mRNA Translation in Cardiac Fibroblasts
Eng Soon Khor, Feng Jiang, Omar Hedaya, Peng Yao
University of Rochester, Rochester, NY, USA

107. GRK2-mediated Cardiomyocyte Signaling Factors are Responsible for Heart-fat Communication and Mediate the Development of Cardiometabolic Disease
Stephanie Kereliuk, Jessica Ibetti, Rajika Roy, Kenneth Gresham, Walter Koch
Center for Translational Medicine, Lewis Katz School of Medicine at Temple University, Philadelphia, USA

108. Hyperbaric Oxygen Therapy Prevents Reductive Stress Induced Diastolic Dysfunction
Sini Sunny, Silvio H Litovsky, Steven M Pogwizd, Namakkal Soorappan Rajasekaran
University of Alabama at Birmingham, Birmingham, USA.

109. CNOT1-Tristetraprolin Binding Disruption: A Novel Potential Antidiabetic Drug Discovery
Zeinab Najafi, Teruki Sato, Maryam Balibegloo, Hossein Ardehali
Northwestern University, Chicago, USA.

110. Efficacy of AAV-transduced Cre Mediated Excision in Adult Mouse Cardiomyocytes
Ahmed-Rashad A. Ahmed, Michael J. Zhang, Dylan J. Gyberg, Chastity L. Healy, Timothy D. O'Connell, University of Minnesota Twin Cities, Minneapolis, USA

111. Next-generation α1-adrenergic Receptor Antagonists without Cardiotoxic Side-effects for the Treatment of Hypertension
Chastity Healy, Sara Puccini, Ingrid Aragon, Vasudeva Dodda, Ramaiah Muthyala, Yuk Sham, Timothy O'Connell, University of Minnesota, Minneapolis, USA.

Poster Session
Thursday, June 29
3:30-5 p.m.

112. Loss of Free Fatty Acid Receptor 4 Impairs Left Ventricular Functional Recovery after Ischemia Reperfusion: a Novel Role for Phosphodiesterase 6c
Michael Zhang, Sergey Karachenets, Chastity Healy, Timothy O'Connell
University of Minnesota, Minneapolis, USA.

113. An in-depth Plasma Proteomics Workflow Powered by a Novel HRAM Mass Spectrometer
Amirmansoor Hakimi, Andreas Huhmer, Thermo Fisher Scientific, San Jose, USA.

114. High-throughput Proteomics on a Novel High-resolution Accurate Mass (HRAM) Platform
Tabiwang Arrey, John Butler, Thermo Fisher Scientific, Bremen, Germany.

115. Gene and Environmental Interaction for the Pathogenesis of Cardiac Alzheimer's
Helen Butler, Marice McCrorey, Colin Combs, Loren Wold, Federica del Monte
Medical University of South Carolina, Charleston, USA.

116. A Benchmarking Workflow for High-Throughput DIA Label-Free Quantification using a Novel High-Resolution Accurate Mass Platform
Anna Pashkova, Robin Sutka, Thermo Fisher Scientific, San Jose, USA.

117. Single-shot LC-MS Workflow for Comprehensive Proteome Identification on a Novel High-resolution Accurate Mass Platform
Santosh Renuse, Andreas Huhmer, Thermo Fisher Scientific, San Jose, USA.

118. NanoCSC Reveals Chamber-specific Surfaceome Dynamics of Primary Human Cardiomyocytes
Roneldine Mesidor, Melinda Wojtkiewicz, Michelle Waknitz, Rebekah L Gundry
University of Nebraska Medical Center, Omaha, USA.

119. **The COP9 Signalosome Promotes Neointimal Hyperplasia through Cullin Deneddylation Dependent and Independent Mechanisms**
Samiksha Giri, Chao Suo, Ruggero Pardi, Gregory Fishbein, Xuejun Wang
University of South Dakota Sanford School of Medicine, Vermillion, USA.

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2023

AWARD SPEAKERS

PETER HARRIS DISTINGUISHED SCIENTIST AWARD

Daniel Kelly, M.D.

Rachel Ash Presidential Professor at Children's Hospital of Philadelphia, U. of Pennsylvania Perelman School of Medicine

DECIPHERING THE METABOLIC ORIGINS OF HEART FAILURE: TOWARDS NOVEL THERAPEUTIC TARGETS

PRESIDENT'S DISTINGUISHED LECTURE

Jennifer Van Eyk, PhD

Director, Advanced Clinical BioSystems Research Institute Cedars-Sinai Medical Center

CHANGING THE PERCEPTION OF CARDIAC DISEASE: THE IMPACT OF PROTEOMICS

KEYNOTE LECTURE AWARD

Donald Bers, Ph,D,

Distinguished Professor, Chair, Department of Pharmacology; Joseph Silva Endowed Chair for Cardiovascular Research, School of Medicine, UC-Davis

CALCIUM AND CAMKII IN HEART FAILURE AND ARRHYTHMIAS

NAS INNOVATOR AWARD

Sumanth Prabhu, M.D.

Lewin Distinguished Professor of Cardiovascular Diseases; Chief, Division of Cardiology; Barnes Jewish Hospital, Washington University

HEART FAILURE AND INFLAMMATION – A LOSS OF MACROPHAGE RHYTHM

MCI LEADERSHIP AWARD

Jennifer Davis, Ph.D.

Associate Professor, Laboratory Medicine and Pathology, Bioengineering

Director, Center for Cardiovascular Biology Associate Director, ISCRM

UNLOCKING THE SECRETS OF FIBROBLAST BIOLOGY & CARDIAC TISSUE HOMEOSTASIS

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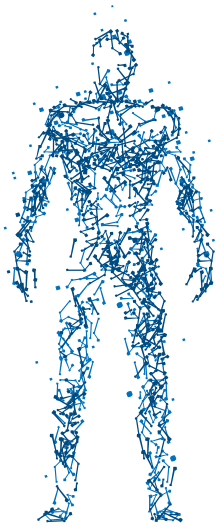

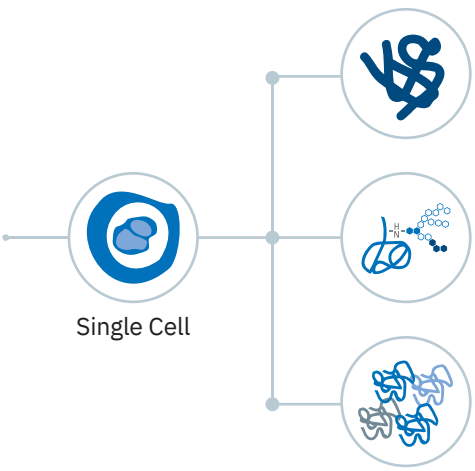

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>200 post translational modifications (PTMs) with hundreds of potential sites per protein driving protein activity and interactions, as well as cell function.

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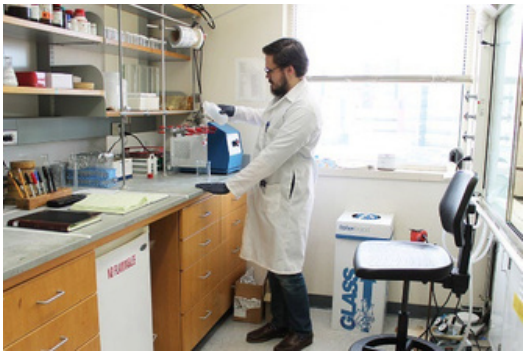
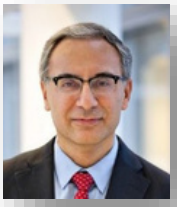
Cardiovascular disease remains the leading cause of death in both men and women across the nation. In 1995, the Cardiovascular Research Center was established to provide a focus for cardiovascular sciences and to facilitate the University of Wisconsin-Madison as a national leader in cardiovascular research and clinical care. Today the center brings together over 130 faculty and scientists, with diverse interests in cardiovascular research, from over thirty different departments across campus. These researchers strive to reduce the incidence of debilitating cardiovascular diseases by developing new, more effective approaches to treatment and prevention. The Cardiovascular Research Center allows researchers—studying independently and in concert—to examine the effects of cardiovascular disease, to track it on the most basic cellular levels, and to explore new strategies for treatment. A primary goal of the Cardiovascular Research Center is to develop new partnerships between researchers and clinicians in order to foster collaborative cardiovascular research and facilitate improved understanding of disease processes and prevention, diagnosis and treatment of disease.



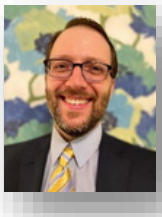
TRANSLATIONAL RESEARCH The Cardiovascular Research Center promotes interdisciplinary research and training programs in cardiovascular sciences, with an emphasis on fundamental, applied and public health research. Discoveries made in UW Cardiovascular Research Center laboratories and clinics translate into new approaches and treatments. Breakthroughs are quickly put to use in preventing and treating heart disease. Included in the many areas of research currently being studied are Contractility/Heart Failure, Vascular Biology/Atherosclerosis, Diagnostics/Heart and Vascular Imaging, and Cardiovascular Regenerative Medicine/Cell Biology.

TRAINING PROGRAM The UW Cardiovascular Research Center Training Program in Translational Cardiovascular Science is a training program in cardiovascular science for both predoctoral and postdoctoral trainees. The mission of this program is to attract individuals to careers that include cardiovascular research and to train them in research that is motivated and informed by clinical practice. The research activities of the faculty in this training program can be generally categorized as: Ion Channels/Arrhythmias, Heart Failure/Cardioregenerative Medicine, and Vascular Biology/Atherosclerosis.

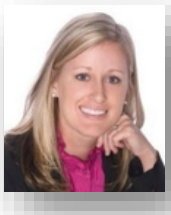
To learn more, please visit: www.cvrc.wisc.edu.



Héctor H. Valdivia
Director



Eric Schafer
Administrator



Katie Rnadall
Administrator

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

AGENDA
ACRE@ISHR-NAS Pre-Conference Symposium
June 26, 2023

Meat Science and Animal Biologics Building (Lecture Hall 1111)
1933 Observatory Dr., Madison, WI 53706

1 -1:15 p.m. Opening Remarks: Drs. Xuejun (XJ) Wang, Ying Ge, David Lefer

1:15-3:10 p.m. Featured Lectures (Modulators: Drs. Guo-Chang Fan and Long-Sheng Song)

1. Cardiac sarcomere protein quality control and BAG3: repairing the engine without stopping the car.
Jonathan Kirk, Ph.D. Loyola University Chicago Stritch School of Medicine, Maywood, IL
2. Long non-coding RNAs: Dark materials behind the human heart.
Lei Yang, Ph.D., Indiana University School of Medicine, Indianapolis, IN
3. Translational control of cardiac pathophysiology: when mRNA meets the heart.
Peng Yao, Ph.D., University of Rochester School of Medicine and Dentistry, Rochester, NY
4. Targeting post-translational protein modification against ischemic heart failure.
Yajing Wang, M.D., Ph.D. The University of Alabama at Birmingham (UAB), Birmingham, AL
5. PKA and heart disease.
Xiongwen Chen, Ph.D., Pharmacy School of Tianjin Medical University, Tianjin, China

3:10-3:25 p.m. Break

3:25 – 4:25 p.m. Oral Abstract Presentations-Session 1 (Modulators: Drs. Liya Yin and Kevin Y. Xiang)

1. Loss of free fatty acid receptor 4 impairs left ventricular functional recovery after ischemia-reperfusion: a novel role for phosphodiesterase 6c (Abstract # 122). Michael Zhang,UMN, Minneapolis, MN
2. The COP9 signalosome promotes neointimal hyperplasia through cullin deneddylation dependent and independent mechanisms (Abstract # 19). Samiksha Giri, U. of S. Dakota, Vermillion, SD
3. Proximity labeling proteomics uncovers the putative mechanism of disrupted RBM20 nuclear import in RBM20 cardiomyopathy (Abstract # 45). Zachery Gregorich, UW-Madison, Madison, WI
4. Phosphodiesterase 10A inactivation protects against doxorubicin-induced cardiotoxicity and concomitantly inhibits tumor growth (Abstract # 123). Vivian Si Chen, U. of Rochester, Rochester, NY
5. Delineate the postnatal cardiomyocyte maturation using single-nucleus RNA-seq (Abstract # 119). Haofei Wang, UNC at Chapel Hill, Chapel Hill, NC

4:25 -4:40 p.m. Break

4:40 – 5:40 p.m. Oral Abstract Presentations- Session 2 (Modulators: Drs. Rongxue "Rosie" Wu and Huabo Su)

1. Disruption of RS domain function in RBM20 is causative in dilated cardiomyopathy (Abstract # 12). Yanghai Zhang, UW-Madison, Madison, WI
2. PKA-mediated phosphoregulation and activation of 26S proteasomes protect against cardiac hypertrophy and heart failure induced by systolic overload (Abstract # 22). Md Salim Ahammed, U. of S. Dakota, Vermillion, SD
3. ERK/MAPK inhibition exerts therapeutic effects on TTNtv cardiomyopathy in zebrafish (Abstract # 121). Weiyue Wang, Mayo Clinic, Rochester, MN
4. Linking the genetic variants and altered protein PTM landscape in cardiovascular diseases via artificial intelligence (Abstract # 125). Yu Yan, UCLA, Los Angeles, CA
5. eIF4G2 Is a regulator of pro-fibrotic mRNA translation in cardiac fibroblasts (Abstract # 161). Eng Soon Khor, U. of Rochester, Rochester, NY

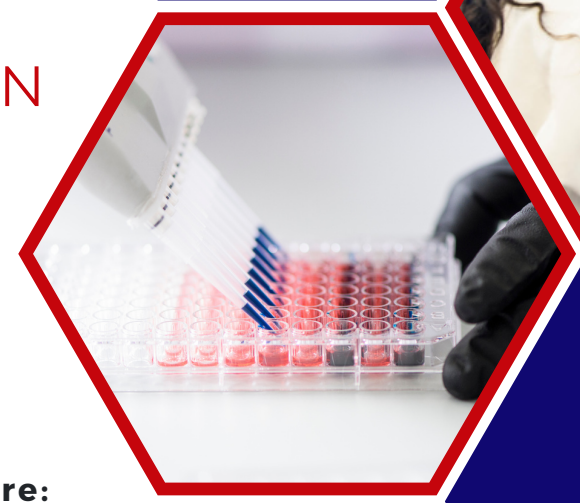
5:40 – 6:15 p.m. Concluding remarks: Drs. Jiang (JC) Chang, Zhao Wang, Wei Guo

6:15 – 8 p.m. Dinner and Conclusion

ISHR

NORTH AMERICAN SECTION

Our mission is to promote the discovery and dissemination of knowledge in the cardiovascular sciences on a world-wide basis through publications, congresses, and other media.



Our goals are:

- To promote and foster the exchange and diffusion of concepts and information throughout the Americas relating to metabolism, structure, and function of the cardiovascular system in health and disease.
- To advance knowledge in the scientific disciplines relating to cardiovascular function and disease.
- To hold regular scientific meetings dealing with heart research.
- To provide a suitable forum for the discussion of problems relating to cardiovascular function and disease.

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JOIN US IN 2024

ISHR-NAS 2024
August 18-24, 2024
Hyatt Regency Long Beach
Co-chairs:
Peipei Ping, PhD
Jennifer Van Eyk, PhD
Long Beach, CA

JOIN US IN 2025

ISHR NARA World Congress
May 11-14, 2025
Nara Prefectural Convention Center, Japan
Congress Chair- Issei Komuro, M.D., Ph.D.
Vice President and Professor
International University of Health and Welfare
Tokyo, Japan

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International Society for Heart Research
North American Section

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