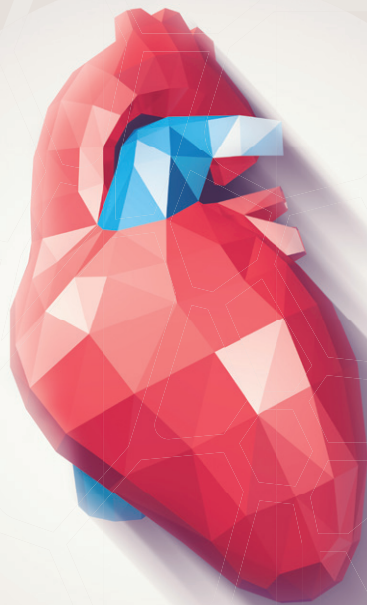


Welcome

2025 Weinstein Cardiovascular Development & Regeneration Conference



Children's
Wisconsin

Herma Heart Institute

In collaboration with



childrenswi.org/weinstein

Thank you

to our co-chairs and planning committee!

2025 Weinstein Cardiovascular Development and Regeneration Conference Co-chairs



Joy Lincoln, PhD

Associate Chief Scientific Officer, Children's Research Institute
Director, Cardiovascular Research, The Herma Heart Institute Children's Wisconsin
Professor, Department of Pediatrics, Associate Section Chief, Pediatric Cardiology, Medical College of Wisconsin



Caitlin O'Meara, PhD

Associate Professor, Department of Physiology, Medical College of Wisconsin



Michaela Patterson, PhD

Associate Professor, Department of Cell Biology, Neurobiology and Anatomy, Medical College of Wisconsin
Director, Graduate Program in Cell and Developmental Biology, Medical College of Wisconsin

Scientific Planning Committee

Lu Han

Medical College of Wisconsin

Junsu Kang

University of Wisconsin-Madison

Ivan Moskowitz

University of Chicago

Ken Poss

Morgridge Institute for Research

We would like to extend a warm welcome

to you, as you experience Milwaukee, Wis. during the 2025 Weinstein Cardiovascular Development and Regeneration Conference. It is with great pleasure that we convene this year's conference, focused on advancing the many diverse aspects related to cardiovascular embryology and its impact on congenital heart disease and adult cardiac dysfunction.

This year's meeting brings together researchers from around the world to present new scientific findings within a collegiate setting, and build on new and existing collaborations. In addition, the conference encourages a nurturing environment for trainees to share their work, and create professional networks for future career development.

Thank you to each of our oral and poster presenters, sponsors, exhibitors and participants for your commitment to advancing cardiovascular research across the spectrum from bench to bedside and back; we are excited to collaborate with you over the coming days.

Once again, welcome to the 2025 Weinstein Cardiovascular Development and Regeneration Conference - we are looking forward to collaborating, learning and engaging within this supportive community!

Joy Lincoln, PhD

Caitlin O'Meara, PhD

Michaela Patterson, PhD

The Traveling Weinstein Heart Carpet

Commissioned by Dr. Nadia Rosenthal, the carpet is a silk Persian rug from the Kerman Province of Iran. The Design was based on a “boteh”, or medallion design from a 19th century Afshar rug. The images in the rug represent stages of heart development in embryos. The second row shows the lateral heart masses after gastrulation. The third row shows the cardiac crescent. Subsequent rows show stages in the heart tube as looping proceeds. The last row shows a four-chambered heart with lungs on each side.

Somite structures can be seen to change during the growth of the embryo as well. The reciprocating trefoils around the edge represent the DNA double helix with four colors to represent the four bases. The image of this rug was used for the first edition of the book “Heart Development”, edited by Richard Harvey and Nadia Rosenthal. The rug was donated to the Weinstein Cardiovascular Development Conference in 2001 and transferred every year to the host institution for display during the meeting.



About our host

The Herma Heart Institute



The Herma Heart Institute at Children's Wisconsin, located in Milwaukee, Wis., is committed to the long-term health and well-being of individuals with heart conditions - from the prenatal period through adulthood. Affiliated with the Medical College of Wisconsin, we offer some of the most innovative, advanced cardiovascular care in the nation. Our programs span the continuum of cardiac care,

With pediatric specialists in:

- Cardiology
- Cardiothoracic surgery
- Cardiac anesthesia
- Critical care
- Psychology and developmental medicine

And teams dedicated to:

- Tracheal reconstruction
- Prenatal diagnosis and treatment
- Cardiac research
- Heart failure and heart transplant
- Genetic testing
- Electrophysiology
- Adult congenital heart disease
- Pulmonary hypertension



Herma Heart Institute

Highlights

- The Herma Heart Institute is home to a highly specialized, 24-bed Cardiac Intensive Care Unit with a dedicated multidisciplinary team of cardiologists, anesthesiologists, surgeons, dietitians, therapists, etc., who work in tandem to provide the best and safest care to our patients.
- We perform around 400 heart surgeries and 450 heart procedures, annually.
- **In 2000**, the Herma Heart Institute became the first heart center in the country to offer an Interstage Home Monitoring Program.
- **In 2006**, Children's Wisconsin was the first congenital heart center to use the Berlin Heart as a total artificial heart as a bridge to transplant
- **In 2007**, the world's first developmental follow-up program for heart patients was established at Children's Wisconsin.
- **In 2021**, Children's Wisconsin launched its Cord Blood Program to develop personalized treatment plans for congenital heart disease patients.



Conference app

Use the conference app to view:

- Agenda
- FAQs
- Key notes and speakers
- Food and entertainment
- Abstract details and posters

Scan the QR code to download the Cvent Events app.



- Search "Weinstein Cardiovascular Development and Regeneration Conference | 2025 Milwaukee."
- Log in using name and email from registration.

Wi-Fi

- Name: Pfister Conference
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Thank you

to our sponsors and exhibitors

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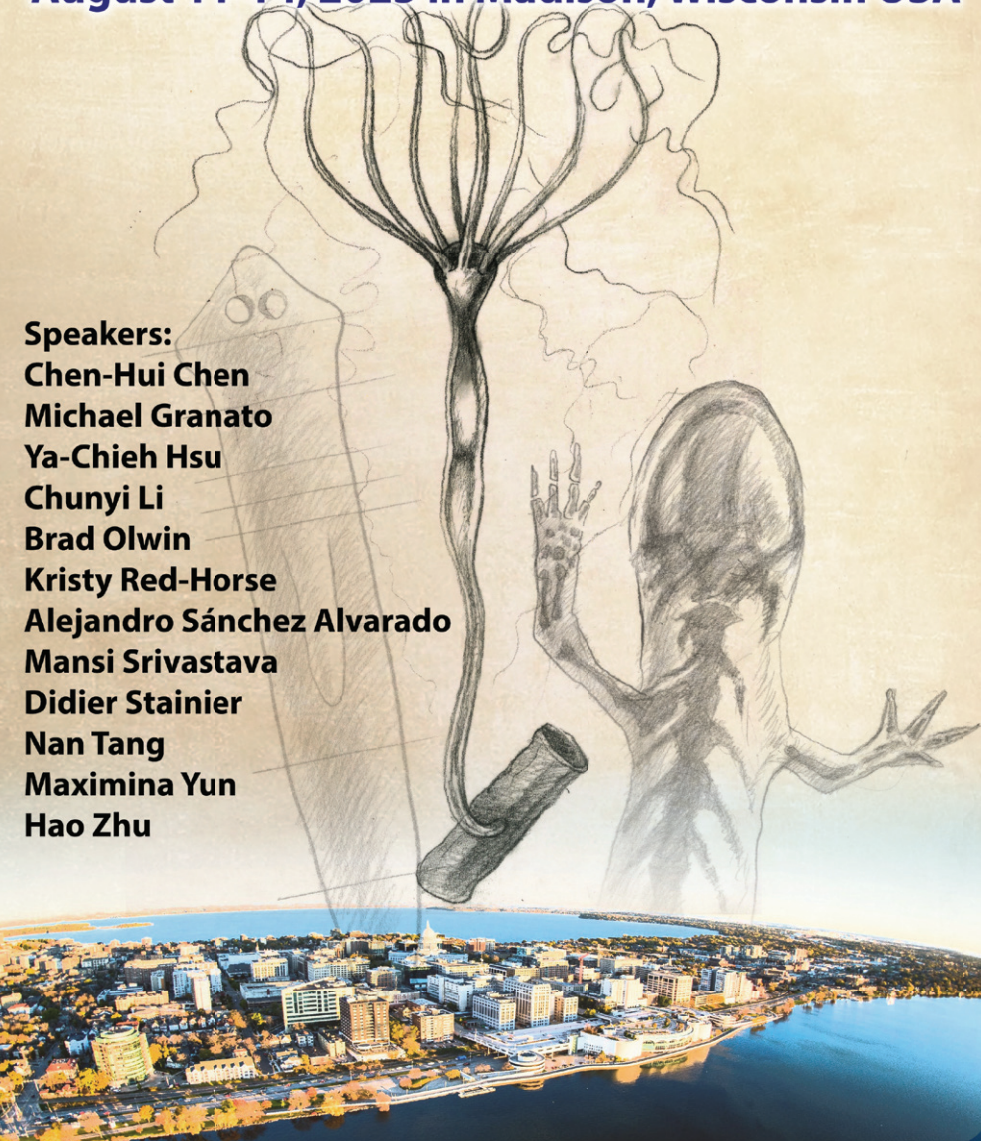


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**Biennial Meeting of
The International Society for
REGENERATIVE BIOLOGY**
August 11-14, 2025 in Madison, Wisconsin USA



Speakers:
Chen-Hui Chen
Michael Granato
Ya-Chieh Hsu
Chunyi Li
Brad Olwin
Kristy Red-Horse
Alejandro Sánchez Alvarado
Mansi Srivastava
Didier Stainier
Nan Tang
Maximina Yun
Hao Zhu

Information on registration and abstract submission at:
<https://uwmadison.eventsair.com/isrb25/>

Keynote Speakers



Michael Levine, PhD
Lewis-Sigler Institute,
Princeton University

Michael Levine's lab has studied mechanisms responsible for switching genes on and off in the early *Drosophila* embryo for over 30 years. These studies led to the characterization of the eve stripe 2 enhancer, short-range repression, and the regulation of long-range enhancer-promoter interactions.

For nearly 20 years the Levine lab has also studied the gene networks underlying the development of a simple protovertebrate, the sea squirt *Ciona intestinalis*. These studies led to the identification of rudimentary tissues for key innovations of the vertebrate "new head", including cranial neural crest, neurogenic placodes, and the second heart field.

Dr. Michael Levine will begin his new post as Director of the Lewis-Sigler Institute for Integrative Genomics at Princeton University in July 2015. He has been Professor of Genetics at UC Berkeley since 1996 and Chairman of the Chancellor's Advisory Council for Biology since 2012. Dr. Levine was Head of the Division of Genetics, Genomics and Development from 2007-2011 and served as Acting Director of the Functional Genomics Program at the Joint Genome Institute (DOE) in 2001. Prior to that he held faculty positions at Columbia University and UCSD, and was a Visiting Professor of Zoology at the University of Zurich from 1999-2000.

Dr. Levine obtained a BA in Genetics from UC Berkeley in 1976 and a PhD in Molecular Biophysics & Biochemistry from Yale in 1981. He was a postdoc in Basel, Switzerland in 1982-1983 where he was a co-discoverer of the homeobox (with Bill McGinnis). Dr. Levine was elected to the National Academy of Sciences in 1998. He received the Molecular Biology Award from the National Academy of Sciences in 1996, the Wilbur Cross Medal from Yale University in 2009, and the EG Conklin Medal from the Society of Development Biology in 2015.



Katherine Yutzey, PhD
The Heart Institute at Cincinnati Children's Hospital Medical Center, University of Cincinnati College of Medicine

Katherine's research program's goals delve into examining and manipulating molecular regulatory mechanisms in heart development and disease. Several years of her program's research work shows that regulatory hierarchies necessary for development of cardiac muscle, valves and fibroblasts also play a part in heart disease. Along with her colleagues, Katherine has put forward great effort and devotion toward analyzing the molecular and cellular mechanisms of valve development, muscle cell maturation and fibroblast lineages in normal and diseased hearts.

They have used mouse, avian, porcine and human systems to study regulatory mechanisms in heart development and disease in children and adults. Their research led them to discover that the regulatory mechanisms controlling maturation of heart muscle, valves and fibroblasts in the developing heart also contribute to adult cardiovascular disease.

Katherine's main research objective is to uncover heart disease processes by merging studies on the regulatory pathways that operate normal heart development with studies on the molecular development of disease in animal models and human explanted tissue. The team's long-term goal is to find new therapeutic targets to treat heart disease.

Katherine first became interested in the formation and function of the heart when studying chicken embryonic development. Over the years, her team and others have found striking similarities in how the heart originally develops with how cardiac repair and disease progression arises in pediatric and adult heart disease.

Her research has found critical roles for developmental regulatory programs in heart valve disease, cardiac fibrosis and heart failure. Furthermore, Katherine and her colleagues have shown that both pediatric and adult cardiac disease are categorized by reactivating developmental gene regulatory programs. Most recently, their research has found that macrophages are a possible cause for heart valve degeneration in Marfan syndrome-related congenital mitral valve disease.

One of Katherine's main tasks as a principal research scientist is to mentor the trainees in her lab. Over the past 20 years, she has trained over 20 pre-doctoral and post-doctoral trainees to develop their research and careers. These trainees have gone on to become senior scientists in the pharmaceutical and biotechnology industries and gain faculty positions in academic research.

Katherine began working at Cincinnati Children's Hospital Medical Center in 1995 and has more than 30 years of experience in her field. Her research has been funded by the National Institutes of Health (NIH) and the American Heart Association.

Agenda

Day 1: Wednesday, May 14

11 a.m. - 1:15 p.m.	Registration and light fare (Foyer)
1:15 - 1:30 p.m.	Welcome by Michaela Patterson, Caitlin O'Meara and Joy Lincoln (Grand Ballroom)
1:30 - 2:50 p.m.	PLATFORM SESSION I Cardiac Development and Maturation Moderators: Michelle Collins, U of Saskatchewan and Frank Conlon, UNC 1:30-1:50 p.m. <i>Charting Postnatal Heart Development Using In Vivo Single-Cell Functional Genomics</i> by Haofei Wang, University of North Carolina at Chapel Hill 1:50-2:10 p.m. <i>Spatiotemporal mapping of heart development provides insight into developmental defects</i> by Otto J. Mulleners, Amsterdam AMC 2:10-2:30 p.m. <i>TIE2 orchestrates heart trabeculation via sequestering FOXO1 within the cytoplasm and stimulating versican cleavage</i> by Xianghu Qu, Vanderbilt University 2:30-2:50 p.m. <i>Dynamic organization of centrosome regulate cardiomyocyte division and maturation</i> by Siqi Li, Medical College of Wisconsin
2:50 - 3:10 p.m.	Break
3:10 - 4:30 p.m.	PLATFORM SESSION II Cardiac Cell Crosstalk and Model Systems Moderators: Conchi Estaras, Temple and Michael Bressan, UNC 3:10-3:30 p.m. <i>Hb-egf-mobilized epicardial cells direct morphogenesis and regeneration of compact cardiac muscle</i> by Fei Sun, Morgridge Institute for Research 3:30-3:50 p.m. <i>Flexible Electronics For Advanced Maturation of Engineered Cardiac Macrotissues</i> by Cel Welch, Stanford University 3:50-4:10 p.m. <i>Vascularization of heart organoids with endothelial cells derived from endocardium and sinus venosus</i> by Yuanhang He, University of Pittsburgh 4:10-4:30 p.m. <i>Restoring PITX2-dependent repression reduces atrial fibrillation risk</i> by Jeffrey D. Steimle, Baylor College of Medicine
4:30 - 5 p.m.	Break
5 - 6 p.m.	KEYNOTE LECTURE I Moderator: Michaela Patterson, Medical College of Wisconsin 5-5:05 p.m. <i>Introduction</i> 5:05-6 p.m. <i>The 3D genome and control of gene regulation in development</i> by Michael Levine, Princeton University
6 - 7:30 p.m.	Dinner Reception (Foyer, Hall of Presidents and King's Row)
6:30 - 8:30 p.m.	POSTER SESSION I (Imperial Ballroom)

Agenda

Day 2: Thursday, May 15

8 – 9 a.m.	Registration and light breakfast (Foyer)
9 a.m.	Welcome Day 2 (Grand Ballroom)
9 – 10:20 a.m.	PLATFORM SESSION III Valvular and Vascular Biology and Disease Moderators: Elaine Shelton, Vanderbilt and Bin Zhou, University of Chicago 9-9:20 a.m. <i>Postnatal heart valve cell heterogeneity and fate</i> by Theresa Bluemn, Medical College of Wisconsin 9:20-9:40 a.m. <i>Multi-Omics Reveals the Biomechanical & Immunity-Driven Pathogenesis of Human Adult Congenital Heart Valve Disease</i> by Mark C. Blaser, Brigham and Women's Hospital/Harvard Medical School 9:40-10 a.m. <i>The basement membrane regulates morphogenesis and biomechanical features of the cardiac valves</i> by Felix Gunawan, University of Muenster/University of Toronto 10-10:20 a.m. <i>Hand2 functions upstream of Jam2 signaling to induce Etv2 expression in organ-specific vascular progenitors</i> by Saulius Sumanas, University of South Florida
10:20 – 10:50 a.m.	Break
10:50 a.m. – 12:10 p.m.	PLATFORM SESSION IV Human Genetics and Models of Congenital Heart Disease Moderators: Na Xu, Cincinnati Children's Hospital Medical Center and Todd Evans, Cornell University 10:50-11:10 a.m. <i>Endocardial Deletion of Dnmt1 Leads to Mitral Stenosis in Mice</i> by Enshi Wang, University of Chicago 11:10-11:30 a.m. <i>PTPN11 N308D, the most common cause of human pulmonary stenosis, causes abnormal pulmonary valve development in mice</i> by Nicole Weaver, Cincinnati Children's Hospital Medical Center 11:30-11:50 a.m. <i>Noncoding variation contributes to life-threatening arrhythmia in young individuals</i> by Tanner O. Monroe, Northwestern University 11:50 a.m.-12:10 p.m. <i>Tbx1 acts upstream of distal enhancers in the cardiopharyngeal mesoderm for cardiac outflow tract formation</i> by Gloria Stoyanova, Albert Einstein College of Medicine
12:10 – 1:30 p.m.	Lunch (Foyer) 
12:30 – 1:30 p.m.	Business meeting (Grand Ballroom)
12:10 – 3:30 p.m.	Break Explore Milwaukee!

Day 2: Thursday, May 15 (continued)

3:30 – 4:50 p.m.	PLATFORM SESSION V Transcriptional and Epigenetic Regulation of Cardiac Development and Disease Moderators: Jingshing Wu, University of Wisconsin-Madison and Kimara Targoff, Columbia University 3:30-3:50 p.m. <i>High-throughput in vivo genetic screening for transcriptional regulators of stress responses in neonatal cardiomyocytes</i> by Ankit Kumar Tamta, Indiana University 3:50-4:10 p.m. <i>Repair of nuclear envelope rupture reverses rupture-associated transcriptional arrest in Lamin-related cardiomyopathy</i> by Atsuki En, Cincinnati Children's Hospital Medical Center 4:10-4:30 p.m. <i>Transcription Factor 4 Maintains Endothelial Cell Identity by Inhibiting Endothelial to Mesenchymal Transition</i> by Lili Zhang, Boston Children's Hospital 4:30-4:50 p.m. <i>TBX5 dose-dependently regulates 3D chromatin organization in a human model of congenital heart disease</i> by Zoe L. Grant, Gladstone Institutes
4:50 – 5 p.m.	Break
5 – 6 p.m.	KEYNOTE LECTURE II Moderator: Joy Lincoln, Medical College of Wisconsin • 5-5:05 p.m. <i>Introduction</i> • 5:05-6 p.m. <i>Persistence pays: Lessons from 40 years in Cardiovascular Development Research</i> by Katherine Yutzey, Cincinnati Children's Hospital Medical Center
6 – 7:30 p.m.	Dinner Reception (Foyer, Hall of Presidents and King's Row)
6:30 – 8:30 p.m.	POSTER SESSION II (Imperial Ballroom)

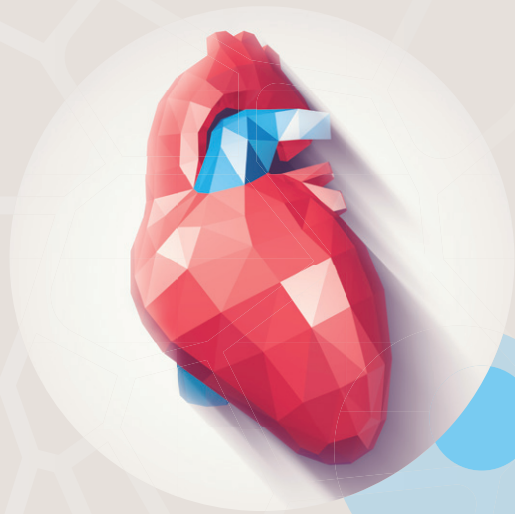
Agenda

Day 3: Friday, May 16

8 – 9 a.m.	Registration and light breakfast (Foyer)
9 a.m.	Welcome Day 3 (Grand Ballroom)
9 – 10:20 a.m.	PLATFORM SESSION VI Cardiac Regeneration, Repair and Protection <i>*generously sponsored by the Morgridge Institute and the Department of Cell and Regenerative Biology, University of Wisconsin-Madison</i> Moderators: Jingli Cao, Weill Cornell Medicine and Aaron Goldmann, The Ohio State University 9-9:20 a.m. <i>Single cell transcriptomics of adult mononucleated cardiomyocytes reveals a single transcription factor that regulates C</i> by Villa del Campo, CNIC, Spain 9:20-9:40 a.m. <i>Lig11 deletion affects cardiomyocyte intercalated disc integrity and enhances cardiomyocyte proliferation during development</i> by Michael Flinn, Medical College of Wisconsin 9:40-10 a.m. <i>Spatial transcriptomic analysis reveals cellular and molecular coordination in zebrafish heart regeneration</i> by Yu Xia, Weill Cornell Medicine 10-10:20 a.m. <i>Fibulin-2 Regulates the Balance Between Cardiac Regeneration and Fibrosis in Zebrafish</i> by Gülsüm Kayman Kürekçi, Centre de recherche Azrieli CHU Ste-Justine
10:20 – 10:50 a.m.	Break
10:50 a.m. – 12:10 p.m.	PLATFORM SESSION VII Early Morphogenesis of the Developing Heart Moderators: Swetansu Hota, Indiana University and Nicole Dubois, Mount Sinai 10:50-11:10 a.m. <i>Fibronectin and Tenascin C control OFT elongation by regulating second heart field architecture and mechanotransduction</i> by Sophie Astrof, Rutgers University 11:10-11:30 a.m. <i>Wnt and Nodal asymmetries stratify cardiac and laterality phenotypes in the absence of node flow in mice</i> by Amaia Ochandorena-Saa, Institut Imagine-Pasteur 11:30-11:50 a.m. <i>The chiral nematic pattern underlies cardiac tissue organization and function</i> by Naofumi Kawahira, University of California, Los Angeles 11:50-12:10 p.m. <i>Tunneling Nanotube-Like structures regulate distant cellular interactions during heart formation</i> by Mingfu Wu, University of Houston
12:10 – 2:10 p.m.	Lunch (Foyer, Hall of Presidents and King's Row)

Day 3: Friday, May 16 (continued)

2:10 – 3:30 p.m.	PLATFORM SESSION VIII Mechanisms of Single Ventricle Disease <i>*generously supported by Additional Ventures</i> Moderators: Andrew Spearman, Medical College of Wisconsin and Irfan Kathiriya, University of California, San Francisco 2:10-2:30 p.m. <i>Self-Organizing Human Heart Assembloids with Autologous and Developmentally Relevant Cardiac Neural Crest-Derived Tissue</i> by Aleksandra Kostina, Michigan State University 2:30-2:50 p.m. <i>Advanced Computational Biophysics Reveal the Mechanism of Function for MYH6 and Dysfunction of Disease-Causing Variants</i> by Young-In Chi, Medical College of Wisconsin 2:50-3:10 p.m. <i>Genetically barcoded multiplex single cell analysis of variants in congenital heart disease</i> by Feng Xiao, Boston Children's Hospital, Harvard Medical School 3:10-3:30 p.m. <i>Nr2f1a-Notch signaling interactions balance chamber-specific endocardial identity necessary for cardiac development</i> by Bitan Saha, Cincinnati Children's Hospital Medical Center
3:30 – 4 p.m.	Break
4 – 5:20 p.m.	PLATFORM SESSION IX Cardiac Progenitors and Cell Fate Moderators: Tim Mead, Case Western and Ivan Moskowitz, University of Chicago 4-4:20 p.m. <i>The pericardium forms as a distinct structure during heart formation</i> by Christian Mosimann, University of Colorado School of Medicine 4:20-4:40 p.m. <i>Fibulin Proteins Regulate Outflow Tract Caliber and Extracellular Matrix Integrity</i> by Maria I. Nunez, Columbia University 4:40-5 p.m. <i>A Hedgehog Signaling Progenitor Delay Model for Establishment of the Distinct Cardiac Progenitor Fields</i> by Robin Canac, University of Chicago 5-5:20 p.m. <i>Mechanistic Insights into the Transcriptional Control of Cardiovascular Cell Fate by Bimolecular Condensates</i> by Peiheng Gan, UT Southwestern
5:20 – 6 p.m.	Closing 5:20-5:45 p.m. <i>Parent Advocacy for CHD</i> by Callie Chiroff, Project Bubaloo 5:45-6 p.m. <i>Closing remarks, Travel awards, Roger Markwald Award</i> by Michaela Patterson, Caitlin O'Meara and Joy Lincoln
6:30 – 11 p.m.	Banquet Dinner (Foyer, Hall of Presidents and King's Row)
8 – 11 p.m.	Gala Entertainment by Fool House (Imperial Ballroom)



Herma Heart Institute

In collaboration with



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