Midwest Cardiac Research Symposium 2025

Thursday, June 12th
Loyola University Chicago
Stritch School of Medicine

Organized By

LOYOLA UNIVERSITY CHICAGO
CARDIOVASCULAR RESEARCH INSTITUTE

Sponsors

LOYOLA UNIVERSITY CHICAGO
CELL & MOLECULAR PHYSIOLOGY

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MappingLab

7:30 – 8:45 AM

Registration, Poster Setup, Refreshments

Loyola University Chicago Stritch School of Medicine

8:45 – 8:50 AM

Welcome Address

***Seth Robia** | Loyola University Chicago*
***Dave Barefield** | Loyola University Chicago*
Tobin Hall

8:50 – 10:10 AM

Session I: Trainee Oral Abstracts

*Moderator: **Ivana Kuo** | Loyola University Chicago*

8:50 **Michael Kamradt** | Cincinnati Children's Hospital
Characterization of the role of the novel microprotein SENTRY in the cardiac and skeletal muscle

9:02 **Sayhaan Goraya** | Northwestern University
Dissecting polygenic mechanisms in atrial fibrillation and atrial myopathy

9:14 **James Teuber** | University of Michigan
Palmitoylation of Rac1 is required for proper cardiac stress adaptation

9:26 **Anna Ataran** | Washington University
Critical role for lysosomal lipolysis in cardiomyocyte growth

9:38 **Sundaram Pakkiriswami** | University of Minnesota
Adaptation to elevated mitochondrial calcium is distinct in the left and right ventricles

9:50 **Cortland Johns** | Purdue University
Murine abdominal aortic aneurysm intraluminal thrombus deposition and inflammation

10:10 – 11:00 AM

Session II: Five-Minute Rapid-Fire Abstracts

*Moderators: **Dave Barefield** | Loyola University Chicago*
***Michael Flinn** | Medical College of Wisconsin*

Duncan MacKenzie | Northwestern University
CRISPR activation for treatment of desmoplakin-related cardiomyopathy

Annabelle Brusacoram | Medical College of Wisconsin
TRP channel has an outsized impact on Ca2+ overload in dystrophic cardiomyopathy by adapting a novel structure

Kelly Araujo | Loyola University Chicago
Evaluating MYBPC3 and MYBPHL missense mutations on sarcomere incorporation

Angie Greenman | University of Wisconsin
Glutathione supplementation improves cardiac function in an engineered heart tissue model of hypertrophic cardiomyopathy

Dominic Kolonay | The Ohio State University
MED12 interacts with transcription factors to control cardiac calcium handling gene expression

Evan Kelly | Loyola University Chicago
Inhibition of the phosphodiesterase 1A isoform induces inotropic and lusitropic effects independent of the L-type calcium channel in mouse ventricular cardiomyocytes

Natalia Tovar | Medical College of Wisconsin
Gaps in guideline-based lipid-lowering therapy for lower-extremity peripheral artery

Shubh Mehta | Purdue University
Advancing pediatric aortopathy assessment through semi-automated echocardiographic quantification

11:00 – 11:25 AM

Refreshments

11:25 – 12:25 PM

Keynote Address

*Moderator: **Dave Barefield** | Loyola University Chicago*

Lesile Leinwand
Chief Scientific Officer, BioFrontiers Institute
Distinguished Professor, Molecular, Cellular and Developmental Biology
University of Colorado Boulder

Translating python biology to mammals: novel therapeutic targets

12:30 PM – 2:30 PM

Lunch and Posters

Stritch School of Medicine Leischner Hall 390
Stritch School of Medicine 2nd Floor Atrium
*1:00 – 1:45 PM **Odd Number Posters***
*1:45 – 2:30 PM **Even Number Posters***

2:30 – 4:00 PM

Session III: Principal Investigator Talks

*Moderator: **Paola Rosas** | University of Illinois Chicago*

2:30 **Joy Lincoln** | Medical College of Wisconsin
Mechanisms of Aortic Stenosis in Bicuspid Aortic Valve Disease

3:00 **Tim O'Connell** | University of Minnesota
Ffar4 in Cardiac Myocytes Attenuates Ischemic Cardiomyopathy

3:30 **Anna Pfenniger** | Northwestern University
Role of Endothelin-1 signaling in the development of atrial fibrillation

4:00 – 4:15 PM

Refreshments

4:15 – 5:15 PM

Session IV: Principal Investigator Talks

*Moderator: **Brian Lin** | Medical College of Wisconsin*

4:15 **Helen Collins** | University of Louisville
Metabolic Remodeling in the Female Heart

4:45 **Matthew Brody** | University of Michigan
Molecular regulation of cardiomyocyte exocytosis and atrial natriuretic peptide secretion by the Rab3 cycle and post-translational lipid modifications

5:15 PM

Announcement of Awards

***Dave Barefield** | Loyola University Chicago*

5:30 – 7:30 PM

Reception and Posters

Stritch School of Medicine 2nd Floor Atrium

Acknowledgements

We thank the 2025 organizing committee and abstract judges: Seth Robia (LUC), David Barefield (LUC), Jonathan Kirk (LUC), Jaroslava Seflova (LUC), Ivana Kuo (LUC), Grace Muller (LUC), Rongxue (Rosie) Wu (UC), Michaela Patterson (MCW), Brian Lin (MCW), Michael Flinn (MCW), Paola Rosas (UIC), Monica Lee (UIC), Prasanth Puthanveetil (MU), Julia Liu (UMinnesota)

THANKS TO OUR SPONSORS!

Loyola University Chicago

- ***Cardiovascular Research Institute***
- ***Department of Cell and Molecular Physiology***

Fuji Film VisualSonics
MappingLab

SPECIAL THANKS:

Kiara Meza (Northwestern) for coordinating abstracts

Nayelly Villalobos and **Aurora Castañeda (Loyola)** for organizing the logistics for this meeting.

Abstracts

Abstract numbers correspond to poster board numbers.

1. **Samia Aljaradat** | Midwestern University
   Cardiac glycogen fluctuations are robust in short-term than long-term binge drinking and follows a sex specific manner
2. **Kelly Araujo** | Loyola University Chicago
   Evaluating MYBPC3 and MYBPHL missense mutations on sarcomere incorporation
3. **Anna Ataran** | Washington University in St. Louis
   Critical role for lysosomal lipolysis in cardiomyocyte growth
4. **Augustine Benjamin** | Northwestern University
   Improved analysis of engineered heart tissue performance through frequency deconvolution
5. **Annabelle Brusacoram** | Medical College of Wisconsin | *TRP channel has an outsized impact on Ca2+ overload in dystrophic cardiomyopathy by adapting a novel structure*
6. **Tuan Bui** | Loyola University Chicago
   Establishing a baseline: defining differences in contractile regulation between iPSC-derived ventricular and atrial cardiomyocytes
7. **Lauren Carl** | Cincinnati Children's Hospital
   Characterization of the role of the novel microprotein SENTRY in the cardiac and skeletal muscle
8. **Hannah Cizauskas** | Loyola University Chicago
   Aging causes more severe atrial structural and functional remodeling in an established mouse model of atrial fibrillation
9. **Jacob Cunningham** | Loyola University Chicago
   Neprilysin cleaves phospholamban C-terminus, disrupting SERCA regulation in heart failure
10. **Mohamed Dabour** | University of Minnesota
    Delineating the molecular mechanisms of doxorubicin-induced cardiotoxicity via an integrated omics approach
11. **Christine Delligatti** | Loyola University Chicago
    Methylglyoxal glycation competes with ubiquitination, disrupting sarcomere function
12. **Michaela Door** | Loyola University Chicago
    Protein tyrosine phosphatase 1B as a regulator of GSK-3β sarcomere localization and myofilament function
13. **Nathan French** | University of Michigan
    Effects of myosin-specific pharmacologics on cardiomyocyte mechanical behavior
14. **Christina Fu** | Washington University in St. Louis
    The role of sphingosine-1-phosphate signaling in hepatic stellate cells during cardiogenic liver disease
15. **Sayhaan Goraya** | Northwestern University
    Dissecting polygenic mechanisms in atrial fibrillation and atrial myopathy
16. **Angie Greenman** | University of Wisconsin
    Glutathione supplementation improves cardiac function in an engineered heart tissue model of hypertrophic cardiomyopathy
17. **Cortland Johns** | Purdue University
    Murine abdominal aortic aneurysm intraluminal thrombus deposition and inflammation
18. **Evan Kelly** | Loyola University Chicago
    Inhibition of the phosphodiesterase 1A isoform induces inotropic and lusitropic effects independent of the L-type calcium channel in mouse ventricular cardiomyocytes
19. **Dominic Kolonay** | The Ohio State University
    MED12 interacts with transcription factors to control cardiac calcium handling gene expression
20. **Duncan MacKenzie** | Northwestern University
    CRISPR activation for treatment of desmoplakin-related cardiomyopathy
21. **Bradley Mahaffey** | University of Michigan
    Cardiac fibroblasts chemo and mechanosensing mediates in-vitro myofibroblastic potential

22. **Laura Martinez-Galindo** | Purdue University
    4D regional strain analysis to predict fibrotic remodeling after myocardial infarction
23. **Shubh Mehta** | Purdue University
    Advancing pediatric aortopathy assessment through semi-automated echocardiographic quantification
24. **Thiago Milech De Assuncao** | Medical College of Wisconsin | *TRPC6 inhibition ameliorates cardiac pathology in a Duchenne Muscular Dystrophy model of iPSC-derived cardiomyocytes*
25. **Sundaram Pakkiriswami** | University of Minnesota
    Adaptation to elevated mitochondrial calcium is distinct in the left and right ventricles
26. **Taylor Phillips** | Loyola University Chicago
    Toxic competitors of phospholamban may contribute to dysregulation of SERCA in heart failure
27. **Julia Pindaro** | Medical College of Wisconsin
    Myofibroblast CCN3 contributes to adverse outcomes following myocardial infarction
28. **Siddhartha Sengupta** | University of Illinois Chicago
    Exploring myocarditis induced cardiomyopathy post mRNA-LNP vaccination in mice
29. **Kshama Shah** | University of Minnesota
    Differences in mitochondrial calcium handling between right and left ventricles in a porcine tricuspid regurgitation model.
30. **Laura Sherer** | Loyola University Chicago
    Post-transcriptional mechanisms of BAG3 regulation in heart failure
31. **Marisa Stachowski** | Northwestern University
    Cardiac MTCH2 regulates whole body metabolic homeostasis
32. **Megan Sumera** | University of Minnesota
    Assessing complex I activity and ROS production post-ischemia reperfusion in acute and chronic Emre knockout models
33. **Bin Sun** | Loyola University Chicago
    Phosphorylation-driven shape-shifting: How ABLIM1's disordered regions regulate heart contractility
34. **Mary Tang** | Loyola University Chicago
    Phosphodiesterase type 1 couples to adenosine A2A receptor signaling at the plasma membrane of cardiomyocytes
35. **James Teuber** | University of Michigan
    Palmitoylation of Rac1 is required for proper cardiac stress adaptation
36. **Natalia Tovar** | Medical College of Wisconsin
    LDL Cholesterol Goal Attainment in Lower Extremity Peripheral Artery Disease
37. **Karim Ullah** | University of Chicago
    Plasmalemma vesicle-associated protein (PLVAP) regulates cardiac endothelial permeability through ARNT-dependent mechanism
38. **Chad Warren** | University of Illinois Chicago
    Mechano- and inflammatory-signaling alterations in hearts of a porcine HCM model harboring a β-myosin heavy chain (MYH7-R403Q) gene mutation
39. **Micah Yoder** | Loyola University Chicago
    Sweet taste receptor activation regulates calcium handling and contractility in cardiomyocytes
40. **Michael Young** | University of Michigan
    Loss of cardiomyocyte Janus kinase 1 (JAK1) causes cardiomyopathy and defective cytokine-dependent STAT3 activation
41. **Benjamin Zeidler** | Purdue University
    Cardiovascular and renal impacts of coincident osteoarthritis and chronic stress