

# Chicago Regional Cardiovascular Research Symposium 2023

Tuesday, July 18<sup>th</sup>

Northwestern University

Simpson-Querrey Biomedical Research Center

## Organizers

**M Northwestern Medicine**<sup>®</sup>

Feinberg School of Medicine

Center for Genetic Medicine



**CARDIOVASCULAR  
RESEARCH INSTITUTE**

## Industry Sponsors



7:45 – 8:45 AM

**Registration, Poster Setup, Refreshments**

*Simpson-Querrey Atrium*

8:50 – 9:00 AM

**Welcome Address**

**Elizabeth McNally** | Northwestern University  
*Hughes Lecture Hall*

9:00 – 10:20 AM

**Session I: Trainee Oral Abstracts**

*Moderator: Jaroslava Seflova | Loyola University Chicago*

9:00 **Michael Flinn** | Medical College of Wisconsin  
*Myofibroblast Ccn3 Contributes to Adverse Cardiac Outcomes Following Myocardial Infarction*

9:13 **Lisa Volpatti** | University of Chicago  
*Engineered cytokines target atherosclerotic plaques and locally suppress inflammation*

9:26 **Paulina Langa** | University of Illinois Chicago  
*Endothelial and vascular dysfunction is triggered by changes in sarcomere properties during early onset of genetic dilated cardiomyopathy*

9:39 **Tyler Buddell** | Medical College of Wisconsin  
*Investigating variants of Hdac7 in mammalian heart regeneration*

9:52 **Christine Delligatti** | Loyola University Chicago  
*Methylglyoxal glycation competes with other lysine-linked PTMs, disrupting sarcomere function*

10:15 **Tanner Monroe** | Northwestern University  
*Quantifying the common variant burden across the nonischemic sudden cardiac death risk spectrum*

10:30 – 11:30 AM

**Session II: Five-Minute Rapid-Fire Abstracts**

*Moderators: Megan Puckelwartz | Northwestern University & David Barefield | Loyola University Chicago*

**Samantha Swift** | Medical College of Wisconsin  
*Cardiomyocyte ploidy is dynamic during postnatal development and varies across genetic backgrounds*

**Abeer Mahmoud** | University of Illinois Chicago  
*The effect of diabetes-associated adiposomes in promoting caveolar loss and endothelial dysfunction*

**Zoheb Khan** | University of Chicago  
*Transcriptomic and electrophysiological impact of cardiomyocyte-specific Tbx5 overexpression in left and right atria*

**Ahmed Zied** | Loyola University Chicago  
*BAG3 regulation and lysosomal kinetics in the cardiac sarcomere protein quality control*

**Milagros Romay** | Northwestern University  
*Positional transcriptomics defines regionally restricted sex-specific differences of the vessel wall*

**Victor Aguilar** | University of Illinois Chicago  
*Endothelial Cd36 mediates endothelium stiffening and barrier disruption in high-fat diet fed mice*

**Ian R. Markson** | Medical College of Wisconsin  
*Investigating the role of Runx1 in cardiac fibroblasts following myocardial infarction*

**Marisa Stachowski** | Northwestern University  
*Deletion of the outer mitochondrial protein Mtch2 in the heart alters metabolism and body composition*

**Christopher Solis** | University of Illinois Chicago  
*Cardiomyocyte external mechanical unloading activates modifications of  $\alpha$ -actinin differently from sarcomere-originated unloading*

**Kaelin Akins** | Medical College of Wisconsin  
*The Role of RUNX1 in CM cell cycle activity and its impact on cardiac regeneration*

**Giedrius Kanaporis** | Rush University  
*Enhanced CaMKII activity and IP<sub>3</sub> signaling in heart failure increase risk of atrial alternans*

11:30 AM – 1:00 PM

**Lunch and posters**

12:15 **Poster abstract competition**  
*Finalists stand by your posters*

1:00 – 2:00 PM

**Keynote Address**

*Moderator: Prasanth Puthanveetil | Northwestern University*

**Marcelo Nobrega** | University of Chicago  
*Genetic regulatory architecture of human diseases*

2:00 – 2:10 PM

**Break**

2:10 – 3:40 PM

**Session III: Senior Investigator Talks**

*Moderator: Paulina Langa | University of Illinois Chicago*

2:10 **Seth Robia** | Loyola University Chicago  
*Phospholamban and the Bowditch effect*

2:40 **Caitlin O'Meara** | Medical College of Wisconsin  
*Dissecting the cell specific role of IL13 signaling in cardiac regeneration and repair*

3:10 **Sanjiv Shah** | Northwestern University  
*Dissecting the heterogeneity of heart failure with preserved ejection fraction*

3:40 – 4:00 PM

**Refreshments**

4:00 – 5:30 PM

**Session IV: Senior Investigator Talks**

*Moderator: Dominic Fullenkamp | Northwestern University*

4:00 **Beata Wolska** | University of Illinois Chicago  
*Old and novel signaling pathways during the onset of HCM*

4:30 **Ivan Moskowitz** | University of Chicago  
*Gene regulatory networks in cardiac development, homeostasis, and disease*

5:00 **Kathrin Banach** | Rush University  
*Interorgan crosstalk: Impact of active colitis on cardiac function*

5:30 PM

**Announcement of Awards**

**Megan Puckelwartz** | Northwestern University  
**David Barefield** | Loyola University Chicago

5:35 – 7:00 PM

**Posters and Refreshments**



## ACKNOWLEDGEMENTS

We thank the organizing committee for their help producing a high-quality symposium. These individuals are:

2023 Co-organizers Megan Puckelwartz (NU) & David Barefield (LUC); Committee members Dominic Fullenkamp (NU), Lisa Wilsbacher (NU), Seth Robia (LUC), Jonathan Kirk (LUC), Rosie Wu (UC), Ivan Moskowitz (UC), Michaela Patterson (MCW), Caitlin O'Meara (MCW), Kathrin Banach (RU), Prasanth Puthanveetil (MU), Beata Wolska (UIC), Mark McCauley (UIC), and Paulina Langa (UIC).

If any senior postdocs or junior faculty would like to join this committee, please contact the co-organizers.

Thanks to our sponsors, **Northwestern University's Center for Genetic Medicine** and **Loyola University Chicago's Cardiovascular Research Institute** for funding this symposium. We also thank our industry sponsors, **Stem Cell Technologies** and **Thermo Fisher** for providing additional prizes.

Special thanks to **Kiara Meza** for coordinating all the abstracts, registrations, and logistics for this meeting.

## ABSTRACT LIST

*Abstract numbers correspond to poster board numbers.*

1. **Dan Marian**, Ayman Isbatan, Ali Imran Sarwar, Maricela Castellon, Jiwang Chen. University of Illinois at Chicago. *Caspase 12 Deficiency is Protective for Heart Failure.*
2. **Virdjinija Vuchkovska**, Karla M. Marquez-Nogueras, Quan Cao, Ivana Kuo. Loyola University Chicago. *The cardioprotective role of Polycystin-2 in acute myocardial infarction.*
3. **Carlos Perez-Cervantes**, Rangarajan D. Nadadur, Michael T. Bromana, Brigitte Laforest, Ozanna Burnicka-Turek, Zhezhen Wang, Sonja Lazarevic, Stefan R. Mazurek, Anna Gams, Sabrina Iddir, Linsin Smith, Jeffrey D. Steimle, Harold E. Olivey, Pingzhu Zhou, Margaret Gadek, Kaitlyn M. Shen, Xinan H. Yang, Kohta Ikegami, Igor R. Efimov, William T. Pu, Christopher R. Weber, Elizabeth M. McNally, Eric C. Svensson, Ivan P. Moskowitz. University of Chicago. *A genomic link from heart failure to atrial fibrillation risk: FOG2 modulates a TBX5/GATA4-dependent atrial gene regulatory network.*
4. **Sonja Lazarevic**, Zhezhen Wang, Carlos Perez-Cervantes, Kaitlyn M. Shen, Margaret G. Gadek, David Park, Ivan P. Moskowitz. University of Chicago. *A shared gene regulatory network underlies atrial pathophysiology in atrial fibrillation and heart failure mouse models.*
5. **Carlos H. Pereira**, Andres Pelaez, Hiroki Kittaka, and Kathrin Banach. Rush University. *Active colitis increases the propensity for ventricular alternans.*
6. **Angelie Bacon**, Paulina Langa, Chad M. Warren, Shamim Chowdhury, Koreena Rafael-Clyke, Paul H. Goldspink, R. John Solaro, Beata M. Wolska. University of Illinois at Chicago. *Amelioration of Hypertrophic Cardiomyopathy Phenotype through Myofilament Ca<sup>2+</sup> Desensitization.*
7. **Hannah Cizauskas**, Azaria Panni, Hope Burnham, Alex Pena, Therese Davis, Kelly Araujo, Christine Delligatti, Jonathan Kirk, Seby Edassery, Rishi Aurora, David Barefield. Loyola University Chicago. *Atrial cardiomyocytes from a canine model of atrial fibrillation demonstrate impaired contractility and contractile remodeling.*
8. **Hiroki Kittaka**, Andres Pelaez, Carlos Pereira, Kathrin Banach. Rush University. *Atrial electrophysiological remodeling induced by active colitis.*
9. **Laura A. Sherer**, Thomas G. Martin, and Johnathan A. Kirk. Loyola University Chicago. *BAG3 Differentially Responds to Acute Versus Chronic Stress via a Post-Transcriptional Mechanism.*
10. **Ahmed Zied**, Michaela Door, Jonathan Kirk. Loyola University Chicago. *BAG3 Regulation and Lysosomal Kinetics in the Cardiac Sarcomere Protein Quality Control.*
11. **Christopher Solís**, Chad M. Warren, Kyle Dittloff, Elisabeth DiNello, R. John Solaro, and Brenda Russell. University of Illinois at Chicago. *Cardiomyocyte external mechanical unloading activates modifications of  $\alpha$ -actinin differently from sarcomere-originated unloading.*
12. **Samantha K. Swift**, Alexandra L. Purdy, Mary E. Kolell, Kaitlyn G. Adresen, Caitlin Lahue, Tyler Buddell, Kaelin A. Akins, Christoph D. Rau, Caitlin C. O'Meara, Michaela Patterson. Medical College of Wisconsin. *Cardiomyocyte ploidy is dynamic during postnatal development and varies across genetic backgrounds.*
13. **GaHyun Lee**, Ashlee M. Long, Jason M. Kwon, Joseph O'Brien, Ivana A. Chychula, Patrick G.T. Page, Lauren A. Vaught, Michele Hadhazy, Alexis R. Demonbreun, Elizabeth M. McNally. Northwestern University. *Changes in extracellular matrix composition of cardiomyopathic heart affect fibroblast morphology and activation.*
14. **Marisa J. Stachowski**, Konrad T. Sawicki, Michele Hadhazy, Megan J. Puckelwartz, Elizabeth M. McNally. Northwestern University. *Deletion of the outer mitochondrial protein MTC2 in the heart alters metabolism and body composition.*
15. Carlos Cruz-Cortés, **Jaroslava Seflova**, Guadalupe Guerrero-Serna, Seth L. Robia, Eric N. Jimenez-Vazquez, Seth L. Robia, and L. Michel Espinoza-Fonseca. Loyola University Chicago. *Discovery of a selective non-steroidal inhibitor of the Na<sup>+</sup>/K<sup>+</sup>-ATPase.*
16. **Paulina Langa**, Chad M. Warren, Angelie Bacon, Bhairavi Swaminathan, Jan Kitajewski, R. John Solaro, Paul H. Goldspink, Beata M. Wolska. University of Illinois at Chicago. *Endothelial and vascular dysfunction is triggered by changes in sarcomere properties during early onset of genetic dilated cardiomyopathy.*
17. **Victor Aguilar\***, Elizabeth LeMasterb\*, Amit Paulb, Sang Joon Ahnb, James Leea, Irena Levitan. University of Illinois at Chicago. *Endothelial Cd36 mediates endothelium stiffening and barrier disruption in high-fat diet fed mice.*
18. **Lisa R Volpatti**, Joseph Reda, Gustavo Borjas, Zhengjie Zhou, Yun Fang, Jeffrey Hubbell. University of Chicago. *Engineered cytokines target atherosclerotic plaques and locally suppress inflammation.*

19. **Giedrius Kanaporis**, Lothar Blatter. Rush University. *Enhanced CaMKII activity and IP<sub>3</sub> signaling in heart failure increase risk of atrial alternans.*
20. Nisha Patel, Liomar Neves, Carlos Pereira, Shamim Chowdhury, Carlos Soto, Kathrin Banach, **Paola C. Rosas**. University of Illinois at Chicago. *eNOS Signaling Mediates Cardiac Dysfunction in a Heart Failure Mouse Model Linked to Obesity and Volume Overload.*
21. **Zhenbo Han**, Gege Yan, Jordan Jousma, Youjeong Kwon, Won Hee Lee, Sang-Ging Ong. University of Illinois at Chicago. *Epitranscriptomic dysregulation of the microtubule-autophagy axis drives ponatinib-induced cardiotoxicity.*
22. **Garima Tomar**, Tanner Monroe, Felix Karthik, Elizabeth McNally. Northwestern University. *Evaluating atrial cardiomyocyte differentiation from human induced pluripotent stem cells.*
23. **Kelly Araujo**, Lucas Wittenkeller, Alejandro Alvarez-Arce, David Barefield. Loyola University Chicago. *Evaluating MYBPC3 and MYBPHL missense mutations on sarcomere incorporation.*
24. **Hope Burnham**, Geena Fritzmans, David Barefield. Loyola University Chicago. *Examining the Role of Myofilament Protein MyBP-HL in Cardiac Development and Conduction System Function.*
25. **Xinlong Wang**, Hanjun Ryu, Zhaoqian Xie, Jihye Kim, Yugang Liu, Rebecca Keate, Huifeng Wang, John A. Rogers, Guillermo Antonio Ameer. Northwestern University. *Fabrication of a fully bioresorbable, electrically conductive and mechanically compliant cardiac patch.*
26. **Jason M. Kwon**, GaHyun Lee, Ashlee M. Long, Joseph O'Brien, Patrick G.T. Page, Alexis R. Demonbreun, Elizabeth M. McNally. Northwestern University. *Generation of acellular extracellular myoscaffolds to assess changes in extracellular matrix composition of cardiomyopathic heart.*
27. **Alexandra L. Purdy**, Mary Kolell, Kaitlyn Andresen, Sydney Buday, Tyler Buddell, Melinda R. Dwinell, Laura M. Saba, Caitlin O'Meara, Michaela Patterson. Medical College of Wisconsin. *Genetic mapping of cardiomyocyte ploidy phenotypes to identify genetic determinants of outcomes after infarction.*
28. Daniel Rafferty, Reem Odeh, Victoria Nelson, Katlyn Heneghan, Katelyn Martin, Cole Cochran, Angela Leontyev, Akanksh Shetty, **Prasanth Puthanveetil**. Midwestern University. *Higher pharmacological doses of Apigenin and Chrysin alter the mitochondrial redox potential by influencing NAD<sup>+</sup> metabolome in mouse embryonic fibroblasts.*
29. **Daniel Selgrade**, Ivana Chychula, Binjie Li, Tanner Monroe, Sharon George, Megan Puckelwartz, Alexis Demonbreun, Dominic Fullenkamp, Al George, Igor Efimov, Kathleen Green, Elizabeth McNally. Northwestern University. *Innate immune activation modulates contractile and electrical dysfunction in engineered heart tissues for desmoplakin (DSP) cardiomyopathy.*
30. **Santiago Alvarez-Argote**. Medical College of Wisconsin. *Interleukin 13 Signaling to Macrophages Promotes Recovery after Myocardial Infarction and Modifies the Cardiac Immune Response in Mice.*
31. **Roman Nikolaienko**, Thomas Jamrozik, Elisa Bovo, Daniel Kahn, Mostafa Mostafa, and Aleksey V. Zima. Loyola University Chicago. *Intersubunit cross-linking is the key mechanism of cardiac ryanodine receptor dysfunction during oxidative stress: the role of cysteines 1078 and 2991.*
32. **Ian Markson**, Michael Flinn, Michaela Patterson, Caitlin O'Meara. Medical College of Wisconsin. *Investigating the Role of Runx1 in Cardiac Fibroblasts following Myocardial Infarction.*
33. **Tyler Buddell**, Alexandra L Purdy, Xiangwen Peng, Mary E Kolell, Samantha K Swift, Samantha J Paddock, Michael A Flinn, Caitlin C O'Meara, Michaela Patterson. Medical College of Wisconsin. *Investigating variants of Hdac7 in mammalian heart regeneration.*
34. **Ayman Isbatan**, Aayushi Daji, Ming Tang, Haibin Li, Maricela Castellon, Zhigang Hong, Shubhi Srivastava, Sang Ging Ong, Jalees Rehman, Jiwang Chen. University of Illinois at Chicago. *Left ventricular function assessment in two inbred mouse strains following myocardial infarction.*
35. **Pei Zhu**, Calvin Chao, Adam WT Steffect, Caitlyn Dang, Bin Jiang, and Clara B Peek. Northwestern University. *Loss of skeletal muscle Bmal1 impairs limb perfusion and muscle regeneration in a mouse model of peripheral arterial disease.*
36. **Christine E. Delligatti**, Michaela M. Door, Maria Papadaki, Thomas G. Martin, Jonathan A. Kirk. Loyola University Chicago. *Methylglyoxal Glycation Competes with Other Lysine-Linked PTMs, Disrupting Sarcomere Function.*
37. **Lin Piao**, Yong-Hu Fang, Rongxue Wu, Robert B. Hamanaka, Gökha. M. Mutlu, Stephen L. Archer, Alfredo J. Garcia III, Willard W. Sharp. University of Chicago. *Mild Hypoxia Restores Mitochondrial Function and Improves Survival in a Murine Model of Cardiac Arrest.*
38. **Xuan Fang**, Yongjun Kou, Daniel Kahn, John Q. Yap, Maggie Bennet, Seth L. Robia, Aleksey V. Zima, Jordan R. Beach, Patrick W. Oakes, Jonathan P. Davis, Peter M. Kekenus-Huskey. Loyola University Chicago. *Multiscale Modeling of the Ca<sup>2+</sup>-CaM-MLCK Pathway in Pulmonary Arterial Hypertension.*
39. **Michael A. Flinn**, Santiago Alvarez-Argote, Makenna C. Knas, Victor Alencar-Almeida, Caelan Moreno, Tyler Buddell, Reiauna Taylor, Jenny Dnevich, Michaela Patterson, Brian A. Link, Caitlin C. O'Meara. Medical College of Wisconsin. *Myofibroblast Ccn3 Contributes to Adverse Cardiac Outcomes Following Myocardial Infarction.*
40. **Davi M. Lyra-Leite**, Raymond R. Copley, Phillip P. Freeman, Praeploy Pongpamorn, Disheet Shah, Donald E. McKenna III, Brian Lenny, Emily A. Pinheiro, Carly J. Weddle, K. Ashley Fetterman, Malorie Blencard, Hananeh Fonoudi, Yadav Sapkota, Paul W. Burridge. Northwestern University. *Novel basal media enables low-cost culture of hiPSCs and protein-free differentiation of cardiomyocytes.*
41. **Tung D. Nguyen**, Mihir K. Rao, Shaiva P. Dhyani, Justin M. Banks, Michael A. Winek, Monica Y. Lee. University of Illinois at Chicago. *Nup93 limits YAP activity to prevent endothelial cell senescence and dysfunction.*



42. **Joseph O'Brien**, Ashlee Long, Andy Vo, Anthony Gacita, Tanner Monroe, Jason Kwon, Megan Roy Puckelwartz, Alexis R. Demonbreun, Melissa Spencer, Elizabeth M. McNally. Northwestern University. *OGDHL modifies cardiac function and mitigates fibrosis in muscular dystrophy*.
43. **Nancy Rivera**, Rebecca Riter, Caitlyn Dang, Sara Alharbi, Xiaomin Zhang, Guillermo Ameer, Bin Jiang. Northwestern University. *Optimized Murine Hindlimb Ischemia Model to Assess Vascular Regeneration in Peripheral Artery Disease*.
44. **Pranav K. Selvan**, Marie Heffernan, Anne Bendelow, Angela F. Pfammatter, Sarah Kennedy, Norrina Allen, Nia Heard-Garris, Amanda M. Perak. Ann & Robert H. Lurie Children's Hospital of Chicago. *Parental Priorities and Adolescent Cardiovascular Health Intervention*.
45. **Sean R. Cleary**, Jaroslava Seflova, Ellen E. Cho, Konark Bisht, Himanshu Khandelia, L. Michel Espinoza-Fonseca, Seth L. Robia. Loyola University Chicago. *Phospholamban Inhibits the Cardiac Calcium Pump Through Reversing the Allosteric Enhancement of Calcium Affinity by ATP*
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47. **Taylor A. Phillips**, Jaroslava Seflova, Jacob D. Cunningham, Ellen E. Cho, Seby Edassery, Jonathan A. Kirk, Seth L. Robia. Loyola University Chicago. *Poison Peptides May Contribute to Dysregulation of SERCA in Heart Failure*.
48. **Milagros C. Romay**, Feiyang Ma, Gloria E. Hernandez, Ana Mompeon Campos, Jocelynda Salvador, Todd Kimball, Matteo Pellegrini, and M. Luisa Iruela-Arispe. Northwestern University. *Positional Transcriptomics Defines Regionally Restricted Sex-Specific Differences of the Vessel Wall*.
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50. **Alejandro Alvarez-Arce**, Lucas Wittenkeller, Hope Burnham, Geena Fritzmann, David Barefield. Loyola University Chicago. *Proteolytic degradation of new atrial myofilament protein (MyBP-HL) nonsense mutations leads to aberrant sarcomere incorporation and abnormal cell function*.
51. **Tanner O. Monroe**, Lorenzo L. Pesce, Samuel D. Kearns, Lisa M. Dellefave-Castillo, Megan J. Puckelwartz, Elizabeth M. McNally. Northwestern University. *Quantifying the common variant burden across the nonischemic sudden cardiac death risk spectrum*.
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53. **Yuriana Oropeza-Almazán**, Lothar Blatter. Rush University. *Role of mitochondrial ROS for calcium alternans development in atrial myocytes*.
54. **Margaret Fain**, Hiroshi Maekawa, Yalu Zhou, Thomas Rousselle, Tanner Monroe, Valeria Mas, Susan Quaggin. Northwestern University. *Single nucleus RNA sequencing of Sglt2 knockout mouse hearts reveals cardiac-renal communication*.
55. **Calvin Chao**, Caitlyn Dang, Taylor Brown, Bin Jiang. Northwestern University. *Sympathetic Dysfunction Is Associated with Greater Aortic Diameter and Rupture In A Mouse Model of Abdominal Aortic Aneurysm*.
56. Mohamed M. Ali, Chandra Hassan, Mario Masrur, Francesco Bianco, Richard D. Minshall, **Abeer M. Mahmoud**. University of Illinois at Chicago. *The Effect of Diabetes-associated Adiposomes in Promoting Caveolar Loss and Endothelial Dysfunction*.
57. **Jerrell Lovett**. Medical College of Wisconsin. *The Function of Lethal Giant Larvae Protein Homologue 1 in Mediating Intercalated Disc Composition and Cardiomyocyte Proliferation*.
58. **Kaelin A. Akins**, Samantha K. Swift, Mary E. Kolell, Michael Flinn, Samantha Paddock, Caitlin O'Meara, Michaela Patterson. Medical College of Wisconsin. *The Role of RUNX1 in CM Cell Cycle Activity and its Impact on Cardiac Regeneration*.
59. **Amirala Bakhshian Nik**, Ayana Jamal, Brian A. Link, Caitlin C. O'Meara. Medical College of Wisconsin. *The Role of Shroom3 Protein in Cardiac Regeneration and Repair*.
60. Ozanna Burnicka-Turek\*, **Zoheb A. Khan\***, Carlos Perez-Cervantes, Rangarajan D. Nadadur, Ivan P. Moskowitz. University of Chicago. *Transcriptomic and Electrophysiological Impact of Cardiomyocyte-specific Tbx5 Overexpression in Left and Right Atria*.
61. **Zhenbo Han, Jordan Jousma**, Gege Yan, Sarath Babu Nukala, Negar Tabatabaei, Youjeong Kwon, Won Hee Lee, Soroush Tahmasebi, Sang-Ging Ong. University of Illinois at Chicago. *Translational control of SND1 governs endothelial function during stress*.
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63. **Ali Imran Sarwar**, Longshuang Huang, Maricela Castellon, Ayman Isbatan, Viswanathan Natarajan, Roberto F Machado, Dustin Fraidenburg, Jiwang Chen. University of Illinois at Chicago. *YAP1 Deficiency Protects Hypoxia-mediated Pulmonary Hypertension in mice*.
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*and B1R Activation in Cardiac Ischemia-Reperfusion Injury: Insights into Endothelial Barrier Dysfunction and Therapeutic Prospects.*

66. **Connor Lantz**, Amanda Becker, Mallory Filipp, Edward Thorp. Northwestern University. *Macrophages Synthesize Bioactive Lipids to Modulate Cardiomyocyte Metabolism and Proliferation during Cardiac Regeneration.*
67. **Kristofor Glinton**, Connor Lantz, Daniel Lee, Matthew Feinstein, Edward B. Thorp. Northwestern University. *Myeloid Vegfr3 signaling dampens inflammation and promotes lymphatic cross-talk.*
68. **Mallory Filipp**, Zhi-Dong Ge, Connor Lantz, Sanjiv Shah, Edward Thorp. Northwestern University. *Macrophage Fatty Acid Metabolism Promotes Splenic Hematopoiesis through Mitochondrial Signaling During Heart Failure with Preserved Ejection Fraction*