



American Heart Association®

Basic Cardiovascular Sciences

Basic Cardiovascular Sciences 2019 Scientific Sessions

Integrative Approaches to Complex Cardiovascular Diseases

Final Program

July 29-August 1 | Westin Boston Waterfront Hotel | Boston, Massachusetts

Abstracts are available online: <http://professional.heart.org/bcvssessions>

Sponsored and organized by the Council on Basic Cardiovascular Sciences.

professional.heart.org/bcvs

Program at a Glance

	Sunday, July 28	Monday, July 29	Tuesday, July 30	Wednesday, July 31	Thursday, August 1
7:00 AM			7:00-8:00 AM Women in Science Breakfast <i>Ticket required to attend</i>	7:00-8:00 AM Continental Breakfast/ Registration/Exhibits	7:00-8:00 AM Continental Breakfast/ Registration
8:00 AM		8:00 AM Registration/ Exhibits	8:00-9:15 AM Concurrent Sessions 3A: Heart Failure in a Dish: From iPSCs to Organoids 3B: Emerging Discoveries in Myocardial Metabolism	8:00-9:15 AM Concurrent Sessions 8A: Cardiac Arrhythmias: From Basic Mechanisms to Precision Medicine 8B: Cardiac Inflammasome in Heart Failure	8:00-9:15 AM Concurrent Sessions 13A: Aging and Cardiovascular Risk 13B: Novel Therapeutic Targets in Heart Failure
9:00 AM		9:00-9:15 AM Early Career Pre-Conference: Welcome Address	9:15-9:45 AM Refreshment Break/Exhibits	9:15-9:45 AM Refreshment Break/Exhibits	9:15-9:45 AM Refreshment Break
9:30 AM		9:15-10:15 AM Early Career Pre-Conference Session 1 "Next Big Thing" in Cardiovascular Research	9:45-11:00 AM Concurrent Sessions 4A: The Future of Cardiac Fibrosis 4B: Diabetes and Cardiomyopathies: Where Are We Now and What is New?	9:45-11:00 AM Concurrent Sessions 9A: Rare Cardiac Genetic Disorders – New Mechanistic Insights 9B: Workshop 2 – Fostering Mutually Beneficial Collaborations Between Clinicians and Basic Scientists	9:45-11:00 AM Concurrent Sessions 14A: Machine Learning, Big Data and AI in Heart Disease 14B: Development of Therapeutics for Heart Failure
10:00 AM		10:15-10:30 AM Refreshment Break/Exhibits			
10:30 AM		10:30-11:15 AM Early Career Pre-Conference Session 2 "Next Best Thing" in Cardiovascular Research			
11:00 AM		11:15-11:50 AM Early Career Pre-Conference Session 3 Featured Presentation: A Career in Science and Lifelong Lessons	11:00 AM-Noon General Session 5 Keynote Lecture	11:00-11:45 AM General Session 10 Outstanding Early Career Investigator Award Competition	11:00 AM Adjourn
NOON	Noon-6:00 PM Asian Symposium	11:50 AM-12:30 PM Break/Lunch on your own	Noon-1:30 PM Lunch on your own/ Poster viewing/Exhibits OR 12:30-1:30 PM Early Career Session Oh, All the Places You Can Go ... With A Degree	11:45 AM-1:30 PM Lunch on your own/ Poster viewing/Exhibits OR Noon 1:30 PM Lunch and Learn It Takes Two to Tango: What I Wish My Mentor/Mentee Told Me <i>Ticket required to attend</i>	Legend  Plenary Session  Poster Session  Meals/Breaks  Other
1:00 PM		12:30-1:00 PM Opening Welcome			
1:30 PM		1:00-2:35 PM Concurrent Sessions 1A: HFpEF: Unraveling the Gordian Knot 1B: Mechanisms of Mitochondrial Quality Control	1:30-2:45 PM Concurrent Sessions 6A: Cardio Oncology: Protecting the Heart from Cancer Treatment 6B: Cardiac Myofilaments: Mechanics and Regulations in Heart Failure	1:30-2:45 PM Concurrent Sessions 11A: New Frontiers in the Regulation of Cardiac Gene Expression 11B: Molecular and Cellular Aspects of Heart Failure	
2:30 PM					
3:00 PM		2:35-3:05 PM Refreshment Break/Exhibits	2:45-3:15 PM Refreshment Break/Exhibits	2:45-3:15 PM Refreshment Break/Exhibits	
3:30 PM		3:05-4:40 PM Concurrent Sessions 2A: Early Triggers of Heart Failure 2B: Beyond Myocytes and Fibroblasts: Forgotten Cells of the Heart	3:15-4:30 PM Concurrent Sessions 7A: Pathways and Mechanisms of Apoptosis 7B: Workshop 1 Demystifying the NIH	3:15-4:30 PM Concurrent Sessions 12A: Workshop 3 Advances in Cardiovascular Research – New Techniques 12B: Cellular Cross-talk in Heart Failure	
4:30 PM		4:40-7:00 PM Poster Session 1 and Reception	4:30-7:00 PM Poster Session 2 and Reception	4:30-7:00 PM Poster Session 3 and Reception	
6:00 PM					
7:00 PM			7:00 PM Early Career Investigator Social Event	7:00-10:00 PM Council Dinner <i>Ticket required to attend</i>	

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Questions and Information

Questions

If you have questions after reading this program, contact the American Heart Association National Center:

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214.570.5935 (outside the United States)

Fax: 214.373.3406

Email: scientificconferences@heart.org

Website: professional.heart.org

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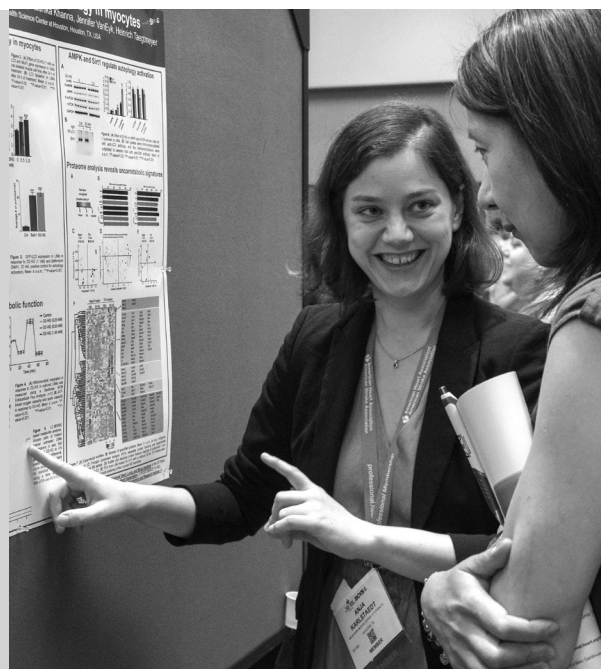
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- Select the conference you’re interested in attending for more details, such as Registration & Housing, Programming, and Abstracts and Awards.
- If you have additional questions, please email us at scientificconferences@heart.org or call toll-free 888.242.2453



Letter From the Chairs

Dear Colleague,

On behalf of the American Heart Association and the Scientific Council on Basic Cardiovascular Sciences, we welcome you to the Basic Cardiovascular Sciences 2019 Scientific Sessions: Integrative Approaches to Complex Cardiovascular Diseases.

The Basic Cardiovascular Sciences Conference has become the major annual meeting in the world for basic research in cardiovascular biology and disease and for many investigators and trainees has become the premier cardiovascular conference of choice. It has emerged as the “go to” meeting for intra- and interdisciplinary cross-fertilization of ideas and incorporation of new approaches from the general cardiovascular research scientific community and plays a pivotal role in the training of junior scientists and other trainees. This meeting attracts our field’s best and brightest researchers from across the globe with the common goal of discovering pathways to cardiovascular therapeutics and promoting cardiovascular health.

The goal of this meeting is to showcase the frontiers of basic and translational cardiovascular science, enhance collaborations among investigators with diverse geographic locations, disciplines and career stages, catalyze new ideas/directions and inspire the next generation of researchers in cardiovascular science.

The planned agenda represents an exciting, fast-paced meeting with more than 30 sessions presented over four days, including a Keynote lecture, “From Myosin to Medicines: A Journey to Treat Hypertrophic Cardiomyopathy,” by Christine Seidman, MD, Brigham and Women’s Hospital. Young investigators and other trainee cardiovascular scientists will be highlighted through invited talks occurring in each session and at poster presentations. Select junior scientist speakers will also present their abstracts within each session topic.

This meeting will feature sessions on human cellular models for cardiac disease including “forgotten” cell types of the heart, translationally relevant model systems, and novel therapeutic modalities as well as technology-focused sessions such as Machine Learning, Big Data, and AI in heart disease. The program also includes three workshops focused on demystifying the NIH, fostering mutually beneficial collaborations between clinicians and basic scientists and advances in cardiovascular research-new techniques. We will again host a very popular breakfast session focusing on the career development and mentorship for women scientists.

We hope you will find the conference an educational experience and a great opportunity to network with scientists from around the world who are dedicated to being a relentless force for a world of longer, healthier lives. We look forward to meeting you.

Sincerely,

BCVS 2019 Scientific Sessions — Program Co-Chairs



Sakthivel Sadayappan, PhD, MBA



Jil Tardiff, MD, PhD



Loren Wold, PhD

*The American Heart Association is a national voluntary health organization whose mission is:
"To be a relentless force for a world of longer, healthier lives."*

The American Heart Association gratefully acknowledges support of BCVS 2019 from:

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The BCVS Early Career Events are made possible by generous contributions from:

Cardiovascular Research Center (CVRC); Temple University School of Medicine
The Consortium for Fibrosis Research and Translation (CFReT)
Emory University – Division of Cardiology
Evangelia Kranias, PhD, FAHA
Joseph A. Hill, MD, PhD, FAHA
Leslie Leinwand, PhD, FAHA; BioFrontiers Institute, University of Colorado, Boulder
Loren Wold, PhD, FAHA
SDSU Heart Institute
Susmita Sahoo, PhD; Cardiovascular Research Center, Icahn School of Medicine at Mount Sinai
Sean Wu, PhD
Stanford Amyloid Center
Stanford Cardiovascular Institute
Temple University's Center for Translational Medicine
UCLA Cardiovascular Theme at the David Geffen School of Medicine

**Special thanks to the individual BCVS Council Members who provided funding to support this meeting
and to the following for their continued work in support of this meeting:**

Yoshiyuki Ikeda MD, PhD,
Cardiovascular Medicine and Hypertension Graduate School of Medicine, Kagoshima University
Mitsuru Ohishi, MD, PhD,
Cardiovascular Medicine and Hypertension, Graduate School of Medicine, Kagoshima University
Junichi Sadoshima, MD, PhD, FAHA,
Rutgers New Jersey Medical School

**The American Heart Association is grateful to the members of the Program Committee
for their dedication and leadership in planning the program.**

Basic Cardiovascular Sciences 2019 Program Committee

Sakthivel Sadayappan, Cincinnati, Ohio
Jil Tardiff, Tucson, Arizona
Loren Wold, Columbus, Ohio
Ju Chen, La Jolla, California
Xin Ma, Philadelphia, Pennsylvania
Junichi Sadoshima, Newark, New Jersey

Ivonne Schulman, Miami, Florida
Joseph Wu, Stanford, California
Wolfram Zimmermann, Göttingen, Germany
Michael Kapiloff, Stanford, California
Rong Tian, Seattle, Washington
Jennifer Van Eyk, Los Angeles, California

Room Locator

Activity	Location
Sunday, July 28	
Speaker Resource Room	Elm 1/2
Asian Symposium	Adams Alcott Douglass Faneuil
Registration Opens	Grand Ballroom Foyer
Monday, July 29	
Speaker Resource Room	Elm 1/2
Registration	Grand Ballroom Foyer
Early Career Pre-Conference	Commonwealth
Opening Welcome	Grand Ballroom A-B
Concurrent Sessions	Grand Ballroom A-B Commonwealth
Refreshment Break/ Exhibits	Grand Ballroom Foyer
Poster Session	Galleria Hall
Tuesday, July 30	
Speaker Resource Room	Elm 1/2
Registration	Grand Ballroom Foyer
Continental Breakfast/ Exhibits	Grand Ballroom Foyer
Women in Science Breakfast	Grand Ballroom C-E
Concurrent Sessions	Grand Ballroom A-B Commonwealth
Keynote Lecture	Grand Ballroom A-B
Refreshment Break/ Exhibits	Grand Ballroom Foyer
Early Career Session	Grand Ballroom C-E
Poster Session	Galleria Hall
Early Career Investigator Social Event	Pavilion

Activity	Location
Wednesday, July 31	
Speaker Resource Room	Elm 1/2
Registration	Grand Ballroom Foyer
Continental Breakfast/ Exhibits	Grand Ballroom Foyer
Concurrent Sessions	Grand Ballroom A-B Commonwealth
Refreshment Break/ Exhibits	Grand Ballroom Foyer
Outstanding Early Career Investigator Award Competition	Grand Ballroom A-B
Lunch and Learn	Grand Ballroom C-E
Poster Session	Galleria Hall
Council Dinner	Grand Ballroom
Thursday, August 1	
Speaker Resource Room	Elm 1/2
Registration	Grand Ballroom Foyer
Continental Breakfast	Grand Ballroom Foyer
Concurrent Sessions	Grand Ballroom A-B Commonwealth

General Information

Exhibits

This year we welcome the following exhibitors:

- ADInstruments
- AHA Professional Membership
- AHA Scientific Journals
- *American Journal of Physiology — Heart and Circulatory Physiology* (APS)
- Exemplar Genetics
- Illumina Inc.
- IonOptix
- iWorx Systems, Inc.
- Propria LLC
- Radnoti
- Scintica Instrumentation
- Transonic Systems Inc.

Learning Objectives

At the conclusion of the conference, participants will be able to:

1. Describe current research into the underlying mechanisms of cardiac remodeling and its relevance to your work.
2. Discuss current research into cardiac fibrosis and its implications for your work.
3. Describe the most recent research related to the physiology and signaling pathways of cardiac myocytes and its implications for your work.
4. Describe the potential role of and challenges involved in the use of big data analytics to guide cardiovascular research and patient care, and their implications for your work.
5. Describe opportunities to bring a greater emphasis on translational research to your work.
6. Describe emerging advances in cardiovascular regenerative medicine, as well as current challenges.

Joint Accreditation Statements

In support of improving patient care, this activity has been planned and implemented by the American Heart Association. The American Heart Association is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

AMA Credit Designation Statement – Physicians

The American Heart Association designates this live activity for a maximum of 22.50 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AAPA Credit Acceptance Statement – Physician Assistants

The AAPA accepts certificates of participation for educational activities certified for *AMA PRA Category 1 Credit™* from organizations accredited by ACCME or a recognized state medical society. Physician assistants may receive a maximum of 22.50 hours of Category I credit for completing this program.

AANP Credit Acceptance Statement – Nurse Practitioners

The American Academy of Nurse Practitioners (AANP) accepts *AMA PRA Category 1 Credit™* from organizations accredited by the ACCME.

****AMA Credit must be claimed within 6 months of attendance. Credit will no longer be available to claim after March 01, 2020.*

Disclosure Policy

All persons who develop and/or control educational content in CME/CE activities provided by the American Heart Association will disclose to the audience all financial relationships with any commercial supporters of this activity as well as with other commercial interests whose lines of business are related to the CME/CE-certified content of this activity. In addition, presenters will disclose unlabeled/unapproved uses of drugs or devices discussed in their presentations. Such disclosures will be made in writing in course presentation materials.

Claiming CME/CE Credit

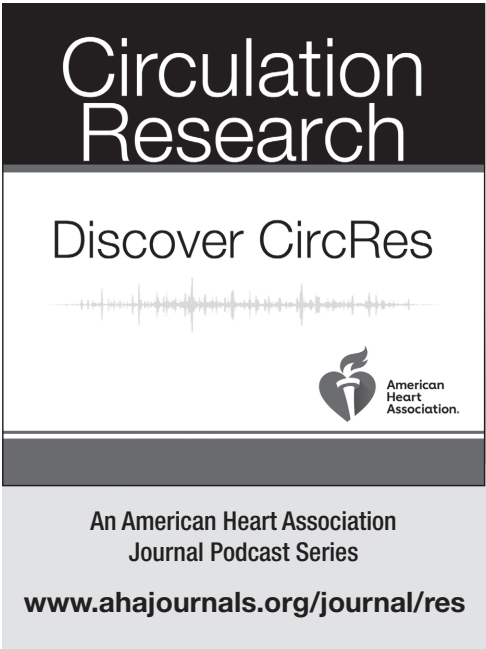
1. Access <http://learn.heart.org>.
2. Click **Activities in Progress**.
3. Enter your Username and Password, and click **Sign In**.
 - a. If you do not remember your Username or Password, click the **Forgot Password?** link.
 - b. If you are not a registered user, click **Create an account** to enter your account information and receive your Username and Password.
4. Select the activity.
5. Review the Activity Overview tab, scroll to bottom and click **Continue**.
6. View the contents of the Material tab as needed and click **Continue**.
7. Click the **Launch** button to complete an evaluation on the course. This step is required to claim credit. Once complete, click **Continue**.
8. Claim your credit by clicking the **Claim** button for the appropriate accreditation.
 - a. ACCME allows claiming of variable credit. You will be given the option to claim all or part of the activity credit if applicable to your user profile.
9. Click **Continue** to generate your certificate.
10. Click the certificate link to print or save it.
11. Click **Close**. The activity is stored under Completed Activities.

You are strongly encouraged to claim your CME/CE credit within 30 days of the conference. CME/CE credit expires:

- ACCME – 6 months after the event date

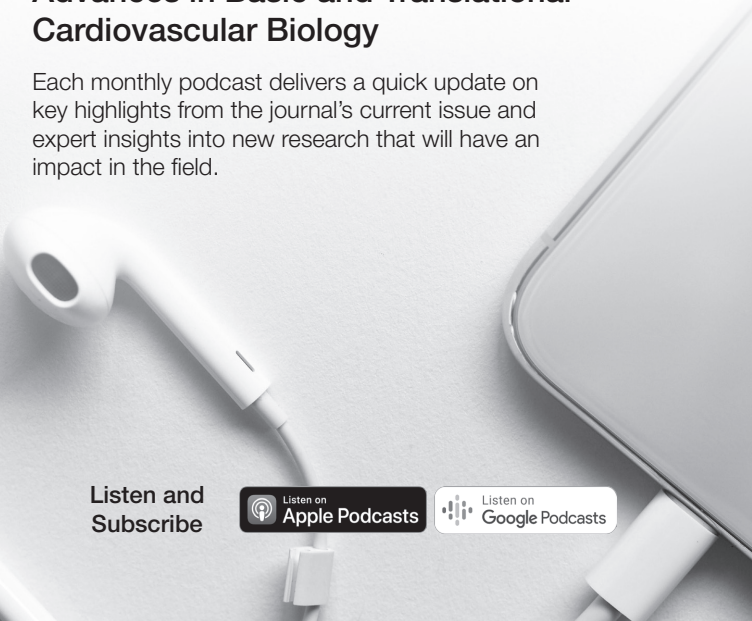
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Information for Presenters

Speaker Resource Room

The Speaker Resource Room is in Elm 1/2. Speakers are asked to deliver their presentations on CD-ROM, DVD-ROM or a USB storage device to the Speaker Resource Room at least one hour before the beginning of the session in which they will speak. ***It is imperative that you review your presentation in the Speaker Resource Room if it contains video files or was created on a Mac.*** Speakers will be directed to a preloading station where a technician will be on hand to load the presentations. Speakers may also use this room to review and practice their presentations on PC and Mac computers.

The Speaker Resource Room will be open during these hours:

Monday, July 29	8:00 AM–6:00 PM	Wednesday, July 31	7:00 AM–6:00 PM
Tuesday, July 30	7:00 AM–6:00 PM	Thursday, August 1	7:00 AM–Noon

Abstract Presentations

Abstract presentations for the Basic Cardiovascular Sciences 2019 Scientific Sessions are embargoed for release at the time of presentation or time of the AHA news event. Information may not be released before the scheduled presentation time.

Abstract content will be available on the BCVS 2019 conference website: professional.heart.org/bcvssessions.

Abstracts will be published online in *Circulation Research*, an AHA journal.

Abstracts will be presented as follows:

The following abstracts will be presented orally during the Early Career Pre-Conference Sessions 1 and 2: “Next Big Thing” in Cardiovascular Research on Monday, and as a poster during the regularly scheduled poster sessions:

Name Abstract Number

Peggi Angel	172
Ryan Burke	511
Jason Choi	730
Joanne Garbincius	234
Claudio Humeres	250
Stephani Page	933
Katharina Schimmel	720

Abstracts 100-123 will be presented orally.

Poster Abstracts

Poster Session 1	Monday, July 29	4:40–7:00 PM	Presentations 130-377
Poster Session 2	Tuesday, July 30	4:30–7:00 PM	Presentations 400-658
Poster Session 3	Wednesday, July 31	4:30–7:00 PM	Presentations 700-946

Poster Presenters, please note the schedule below:

Poster Session Date	Set-up Time	Presentation/ Attendance Time	Tear-down Time
Poster Session 1 Monday, July 29	Noon–4:00 PM	4:40–7:00 PM	Before 9:00 AM
Poster Session 2 Tuesday, July 30	Noon–4:00 PM	4:30–7:00 PM	Before 9:00 AM
Poster Session 3 Wednesday, July 31	Noon–4:00 PM	4:30–7:00 PM	Before 9:00 AM

ePosters

In addition to the traditional poster format, abstract presenters were invited to upload their posters electronically. During the meeting, each abstract will have a QR code displayed on their poster board that will enable attendees with smartphones to view the ePosters and, if applicable, the author’s narration of the poster. ePosters are available only to attendees and may be viewed from the Communication Center, located in the registration area. Posters will be accessible to the general public after August 30.

Conference Highlights

Keynote Lecture



Christine Seidman, MD, will present *"From Myosin to Medicines: A Journey to Treat Hypertrophic Cardiomyopathy"* in the Keynote Lecture at 11:00 AM Tuesday.

Dr. Seidman is the director of the Cardiovascular Genetics Program and a cardiovascular medicine specialist at Brigham and Women's Hospital. She's also the Thomas W. Smith Professor of Medicine at Harvard Medical School.

She received her medical degree from George Washington School of Medicine and Health Sciences. She completed an internal medicine residency at Johns Hopkins Hospital and a cardiology fellowship at Massachusetts General Hospital. Dr. Seidman is board certified in internal medicine and cardiovascular disease. Her clinical interests include cardiovascular medicine and genetics.

Dr. Seidman also leads a molecular genetics laboratory that studies how human gene variants alter the structure and function of the heart. Notable achievements include the discovery of the genetic causes of hypertrophic and dilated cardiomyopathies and congenital heart malformations. Ongoing studies focus on using mechanistic insights to inform new treatment strategies in patients. She has authored more than 300 peer-reviewed articles and received research funding from the Howard Hughes Medical Institute and National Institutes of Health.



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The Journal's Impact Factor Is 4.450, which ranks *JAHA* 36 among 128 journals in the Cardiac & Cardiovascular subject category (2017 Journal Citation Reports Science Edition, Clarivate Analytics, 2018).



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Highlighted Articles on Basic Cardiovascular Science

Fat-Specific Protein 27 Regulation of Vascular Function in Human Obesity

Transcription Factor EB Activation Rescues Advanced α B-Crystallin Mutation-Induced Cardiomyopathy by Normalizing Desmin Localization

Differential Phenotypes in Perivascular Adipose Tissue Surrounding the Internal Thoracic Artery and Diseased Coronary Artery



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Conference Highlights – Early Career and Ticketed Events

Outstanding Early Career Investigator Award Finalists' Presentations

Three finalists will present their abstracts at 11:00 AM Wednesday. The winner will be announced Wednesday evening during the Basic Cardiovascular Sciences Council Dinner. Refer to page 11 for more information on award finalists

Early Career Pre-Conference Sessions

Join us on Monday in Commonwealth Ballroom for these sessions targeted for early career attendees:

9:00–9:15 AM

Early Career Pre-Conference Session: **Welcome Address**

9:15–10:15 AM

Early Career Pre-Conference Session 1

“Next Best Thing” in Cardiovascular Research

Oral Abstract Presentations

10:30–11:15 AM

Early Career Pre-Conference Session 2

“Next Best Thing” in Cardiovascular Research

Oral Abstract Presentations

11:20–11:50 AM

Early Career Pre-Conference Session 3

Featured Presentation: **A Career in Science and Lifelong Lessons**

Evangelia Kranias, Cincinnati, Ohio

Early Career Investigator Social Event will be at 7:00 PM Tuesday, in Pavilion. All early career investigators are welcome to attend.

Women in Science

The 4th annual **Women in Science Breakfast** will begin at 7:00 AM Tuesday in Grand Ballroom C-E. This is an informal networking breakfast for women in all phases of their careers. *Ticket required to attend.*

Council on Basic Cardiovascular Sciences Dinner

Please join us for food, drinks and entertainment at the **BCVS Council Dinner** on Wednesday, from 7:00–10:00 PM in the Grand Ballroom.

Tickets, if available, may be purchased at the AHA Registration Desk (\$60/member; \$85/non-member for conference registrants and their guests).



Conference Highlights – Awards

The American Heart Association Council on Basic Cardiovascular Sciences provides educational programs, awards/scholarships, travel grants and mentoring opportunities that support the ongoing training and development of people in the early stages of their careers.

The council is pleased to announce the finalists and winners of the following awards:

Outstanding Early Career Investigator Award Finalists

The Outstanding Early Career Investigator Award finalists will present their abstracts during a special oral session at 11:00-11:45 AM Wednesday. The winner will be announced at the Council Dinner that evening.

Name/Institution	Abstract Number
Luigi Adamo, Washington University in St Louis	114
Swati Dey, Johns Hopkins University	115
Gihoon Nah, Rutgers University	116

Cardiovascular Outreach Award Recipients

Name/Institution	Abstract Poster Number
Timothy Audam, University of Louisville	823
Cassandra Clift, Medical University of South Carolina	514
Ashraf Duzan, Cleveland State University/Cleveland Clinic	178
Viviana Fajardo, University of California Los Angeles (UCLA)	136
Gabriel Grilo, East Carolina University	577
Mark Lampert, UCSD	349
Njabulo Ngwenyama, Tufts University	112
Krystal Roggerson, Morehouse School of Medicine	862
Tarah Word, Baylor College of Medicine	215

New Investigator Travel Award Recipients

Name/Institution	Abstract/Poster Number
Emma Agnew, Cincinnati Children's Hospital	131
Brooke Ahern, University of Kentucky	807
Cornelis Boogerd, Hubrecht Institute	369, 510
Bijun Chen, Albert Einstein College of Medicine	247
Matthew DeBerge, Northwestern University	792
Jeremie Ferey, Washington University in St. Louis	276
Joanne Garbincius, Lewis Katz School of Medicine at Temple University	851
Andrew Gibb, Lewis Katz School of Medicine, Temple University	517
Yuxuan Guo, Boston Children's Hospital	920
Elena Guzzolino, Clinical Physiology- CNR Pisa	602
Luis Hortells, Cincinnati Children's Hospital	521
Jijun Huang, David Geffen School of Medicine, UCLA	409
Claudio Humeres, Albert Einstein College of Medicine	250
Johannes Janssens, University of Melbourne	333
Ioannis Kyriazis, Temple University	548
Tingsen Lim, Genome Institute of Singapore	200
Brian Lin, Johns Hopkins University	253
Chia-Feng Liu, Cleveland Clinic	940
Shan Lu, University of California, Davis	581
Daniel Matasic, The University of Iowa	503
Meraj Neyazi, Harvard Medical School	104, 649
Christian Oeing, Johns Hopkins University	843
Lara Ottaviani, CARIM School for Cardiovascular Diseases, Faculty of Health, Medicine and Life Sciences, Maastricht University	896
Frank Raucci, Vanderbilt University Medical Center	184
Kalen Robeson, University of Washington	911
Gabriele Schiattarella, UT Southwestern Medical Center	455
Katharina Schimmel, Cardiovascular Institute Stanford	720
Arun Sharma, Harvard Medical School	785
Sarah Shires, University of California San Diego	865
Name/Institution	Abstract/Poster Number

Conference Highlights – Awards (continued)

Rohit Singh, University of Cincinnati	915
Paulina Stanczyk, Northwestern University	308
Masayoshi Suda, Niigata University	804
Nika Taghdiri, University of California, San Diego	228
Allen Teng, University of Toronto	118, 815
Dharendra Thapa, University of Pittsburgh	866
Dan Tong, University of Texas Southwestern Medical Center	867
Prachi Umbarkar, Vanderbilt University Medical Center	530
Sebastiaan van Kampen, Hubrecht Institute	786
Jiangbin Wu, Aab Cardiovascular Research Institute, University of Rochester School of Medicine and Dentistry	264
Jing Yang, Cardiovascular Disease	887
Fang Yao, Fuwai Hospital	106
Peng Yu, Fuwai Hospital	121, 194
Jianqiu Zou, Augusta University	289

Policy Information

Disclaimer

The Basic Cardiovascular Sciences Scientific Sessions is a scientific and educational conference to exchange and discuss research results and scientific developments in the field of cardiovascular disease. Accordingly, the American Heart Association cannot and does not offer any assurance or warranty of the accuracy, truthfulness or originality of the information presented at the conference.

Embargo Guidelines

Abstracts, lectures and presentations at BCVS 2019 Scientific Sessions are embargoed for release at the time of presentation. Information may not be released before the scheduled presentation time.

Photography/Recording Policy

No person may record any portion of the AHA Scientific Sessions, scientific conferences and the ASA's International Stroke Conference, whether by video, still or digital photography; audio; or any other recording or reproduction mechanism. This includes recording of presentations and supporting A/V materials and of poster presentations and supporting poster materials.

Additionally, science information shared by investigators during a meeting is confidential and often unpublished data. Taking photos of or recording the content of meeting room slides is also prohibited and is considered intellectual piracy and unethical. Attendees who ignore this policy will be asked to leave the educational session and are at risk of losing their badge credentials.

The American Heart Association will take photographs and video during its conferences and may display, reproduce and/or distribute them in AHA educational, news or promotional materials, whether in print, electronic or other media, including the AHA website. Your registration for an AHA conference is your grant to the AHA the right to use your name, image and biography for such purposes as well as any other purpose. All photographs and/or videos become the property of AHA.

No Smoking Policy

AHA policy prohibits smoking in conference meeting rooms and exhibits/registration areas. Thank you for your cooperation.

Seating/Badge Requirement

Seating is on a first-come, first-served basis. According to fire code, a session must be closed if the room fills to capacity. You must wear your name badge at all times during the symposium. Nonregistered guests may not be permitted into the sessions or food and beverage events. Be sure to remove your badge when you leave the conference or your hotel room.

The American Heart Association reserves the right to revoke or deny attendance to any registered participant, speaker, exhibitor, news media reporter or photographer of presentations or activities at AHA scientific conferences and meetings.



Americans with Disabilities Act (ADA)

We encourage participation by all individuals. If you have a disability, advance notification of any special needs will help us to serve you better. Please indicate what your needs are at the time of registration. We cannot ensure the availability of appropriate accommodations without prior notification.

Please Note: The American Heart Association shall not be liable for cancellation of the BCVS 2019 Scientific Sessions caused by labor strikes, civil disorders, fires, weather conditions, or other acts of God for any damages or losses resulting from such cancellations.

Program Agenda

MONDAY, JULY 29

8:00 AM

Registration/Exhibits Open

Grand Ballroom Foyer

9:00-9:15 AM

Early Career Pre-Conference Session: Welcome Address

Commonwealth Ballroom

Nicole H. Purcell, La Jolla, California

Sean Wu, Stanford, California

9:15-10:15 AM

Commonwealth Ballroom

Early Career Pre-Conference Session 1

"Next Best Thing" in Cardiovascular Research

Organized in cooperation with the

BCVS Council Early Career Committee

Moderators:

Mark Kohr, Baltimore, Maryland

Sadia Mohsin, Philadelphia, Pennsylvania

Oral Abstract Presentations

- 9:15 **NCLX Expression Attenuates Pathological Remodeling in Experimental Cardiac Hypertrophy and Non-ischemic Heart Failure**
Joanne F. Garbincius, Timothy S. Luongo, Devin W. Kolmetzky, Alycia N. Hildebrand, John W. Elrod, Lewis Katz Sch of Med at Temple Univ, Philadelphia, PA

- 9:30 **Celltype-Specific Functions in Dilated Cardiomyopathy Caused by the LMNA Gene Mutation**
Kunal Sikder, Elizabeth Phillips, Zhijiu Zhong, Nadan Wang, Thomas Jefferson Univ, Philadelphia, PA; Kenneth B. Margulies, Univ at Pennsylvania, Philadelphia, PA; **Jason C. Choi**, Thomas Jefferson Univ, Philadelphia, PA

- 9:45 **Prenatal Exposure of Cigarette Smoke Impacts Cardiac Regeneration**
Katharina Schimmel, Isabel Morgado, Cheng-Yu Tsai, Alessandro Evangelisti, Cardiovascular Inst Stanford, Palo Alto, CA; Sudeshna Fisch, Soeun Ngoy, Divs of Genetics and Cardiovascular Med, Dept of Med, Brigham and Women's Hosp, Harvard Medical Sch, Boston, MA; Dian-Jian Lee, Seema Dangwal, Kevin Alexander, Cardiovascular Inst Stanford, Palo Alto, CA; Jennifer E. Ward, Divs of Genetics and Cardiovascular Med, Dept of Med, Brigham and Women's Hosp, Harvard Medical Sch, Boston, MA; Rongliu Liao, Cardiovascular Inst Stanford, Palo Alto, CA

- 10:00 **Regulation of p53 Protein Levels Drives Activation of Cardiac Fibroblasts in Response to Pressure Overload**
Ryan M Burke, Pearl Quijada, Adwiteeya Misra, Ronald A. Dirx Jr., Brian Kang, Univ of Rochester, Rochester, NY; Christine S. Moravec, Cleveland Clinic, Cleveland, OH; Eric M. Small, Univ of Rochester, Rochester, NY

10:15-10:30 AM

Refreshment Break and Exhibits

Grand Ballroom Foyer

10:30-11:15 AM

Commonwealth Ballroom

Early Career Pre-Conference Session 2

"Next Best Thing" in Cardiovascular Research

Organized in cooperation with the

BCVS Council Early Career Committee

Moderators:

Shirin Doroudgar, Heidelberg, Germany

Ngonidzashe Madungwe, San Antonio, Texas

Oral Abstract Presentations

- 10:30 **Smad3-Mediated Induction of Smad7 in Activated Myofibroblasts Protects the Remodeling Myocardium**
Claudio D. Humeres, Arti Shinde, Nikolaos G. Frangogiannis, Albert Einstein Coll of Med, New York, NY

- 10:45 **Integrated Omics Analysis of Diabetic Heart Failure in Human Myocardium**
Stephani Page, Lydia Kwee, William Kraus, Phillip White, Adam Devore, Robert Mentz, Duke Univ, Durham, NC; Michael Bristow, Univ of Colorado, Aurora, CO; Carmelo Milano, Dawn Bowles, Olga Ilkayeva, G. Michael Felker, Bridgette Christopher, Christopher Holley, Robert McGarrah, Svati Shah, Duke Univ, Durham, NC

- 11:00 **Spatially Distributed N-glycomic Regulation in Human Aortic Valve Development and Disease**
Janet Saunders, Cassandra L. Clift, Medical Univ of South Carolina, Charleston, SC; Yan R. Su, David P. Bichell, Vanderbilt Univ Medical Ctr, Nashville, TN; Anand S. Mehta, Richard R. Drake, **Peggi M. Angel**, Medical Univ of South Carolina, Charleston, SC

11:20-11:50 AM

Commonwealth Ballroom

Early Career Pre-Conference Session 3

Featured Presentation

Organized in cooperation with the

BCVS Council Early Career Committee

A Career in Science and Lifelong Lessons

Evangelia Kranias, Cincinnati, Ohio

11:50 AM

Break/Lunch on your own

12:30-12:55 PM

Grand Ballroom

BCVS 2019 Scientific Sessions:

Opening Welcome

Robert A. Harrington, Stanford, California

Joseph C. Wu, Stanford, California

MONDAY

Program Agenda (continued)

MONDAY

12:55 PM

Break

Grand Ballroom Foyer

1:00–2:35 PM

Grand Ballroom

Concurrent Session 1A

HFpEF: Unraveling the Gordian Knot

Moderators:

Timothy J. Kamp, Madison, Wisconsin

Sara Nunes Vasconcelos, Toronto, Ontario

- 1:00 **Understanding Alternative Metabolic Pathways in the Progression of Heart Failure**
E. Douglas Lewandowski, Columbus, Ohio
- 1:20 **HFpEF Physiologic Subphenotyping to Identify Therapeutic Targets**
Gregory D. Lewis, Boston, Massachusetts
- 1:40 **The Role of Obesity and Inflammation in HFpEF**
Jennifer E. Ho, Boston, Massachusetts
- 2:00 **Adipose Tissue in HFpEF: Are Wires Crossed in Cardiac-adipose Tissue Cross-talk?**
Flora Sam, Boston, Massachusetts

Oral Abstract Presentation

- 2:20 **Dual Activation of PKA and PKG by PDE1 Inhibition Facilitates Proteasomal Degradation of Misfolded Proteins and Protects Against Proteinopathy-Based HFpEF**
Hanming Zhang, Bo Pan, Penglong Wu, Univ South Dakota, Vermillion, SD; Mark D. Reikter, Lilly Res Labs, Indianapolis, IN; Alfred L. Goldberg, Harvard Medical Sch, Boston, MA; Xuejun Wang, Univ South Dakota, Vermillion, SD

1:00–2:35 PM

Commonwealth Ballroom

Concurrent Session 1B

Mechanisms of Mitochondrial Quality Control

Moderators:

Swati Day, Baltimore, Maryland

David Lefer, New Orleans, Louisiana

- 1:00 **Mitochondria in Cell Death and Cardioprotection**
Elizabeth (Tish) Murphy, Bethesda, Maryland
- 1:20 **Krüppel-like Factor 5 (KLF5): A Novel Driver of Cardiac Oxidative Stress and Diabetic Cardiomyopathy**
Konstantinos Drosatos, Philadelphia, Pennsylvania
- 1:40 **Lipids and Mitochondrial Quality Control**
Rong Tian, Seattle, Washington
- 2:00 **Is There a Role for O-linked β -N-Acetylglucosamine (O-GlcNAc) Modification of Proteins in Mitochondrial Quality Control?**
John Chatham, Birmingham, Alabama

Oral Abstract Presentation

- 2:20 **Identification of Novel MICU1 Interactors Independent of the mtCU Complex**
Dhanendra Tomar, Joanne F. Garbincius, Devin Kolmetzky, Manfred Thomas, Pooja Jadiya, John W. Elrod, Temple Univ, Philadelphia, PA

2:35–3:05 PM

Grand Ballroom Foyer

Refreshment Break/Exhibits

3:05–4:40 PM

Grand Ballroom

Concurrent Session 2A

Early Triggers of Heart Failure

Moderators:

Joseph Hill, Dallas, Texas

Sumitra Miriyala, Shreveport, Louisiana

- 3:05 **HDAC Inhibition Can Reverse Pressure Overload Induced Cardiac Structural and Functional Defects**
Steven Houser, Philadelphia, Pennsylvania
- 3:25 **Nox-mediated Tuning of Cardiac Stress Response**
Ajay Shah, London, United Kingdom
- 3:45 **A Live Tracking Mouse Model for Endogenous Cardiac Exosomes**
Jiang Chang, Houston, Texas
- 4:05 **Linking Metabolism to the Extracellular Matrix**
Steven P. Jones, Louisville, Kentucky

Oral Abstract Presentation

- 4:25 **Molecular, Cellular and Systemic Mechanism of Nonlinear Dynamic Patterns of Ventricular Repolarization and Spontaneous Arrhythmic Sudden Death in Non-ischemic Heart Failure**
Daiana C. O. Vieira, Jeffrey S. Crocker, Krina Desai, Neha Reddy Sanagala, Daniel R. Wendelken, Kenneth G. Parks, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH; Ting Liu, Brian O'Rourke, Swati Dey, Div of Cardiology, Johns Hopkins Univ Sch of Med, Baltimore, MD; Deeptankar DeMazumder, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH

3:05–4:40 PM

Commonwealth Ballroom

Concurrent Session 2B

Beyond Myocytes and Fibroblasts: Forgotten Cells of the Heart

Moderators:

Michelle Parvatiyar, Tallahassee, Florida

Xuejun Wang, Vermillion, South Dakota

- 3:05 **The Color of Fat: Brown, Beige, White, and More**
Shingo Kajimura, San Francisco, California

Program Agenda (continued)

3:25 **Implications of a New Amplifier Control Knob for mTORC1**
David A. Kass, Baltimore, Maryland

3:45 **Stress Signaling: A Significant Pathological Node That Governs AF Risk**
Xun Ai, Chicago, Illinois

4:05 **Direct Reprogramming and Cardiovascular Research**
Masaki Leda, Tsukuba, Japan

Oral Abstract Presentation

4:25 **Single Cell Transcriptome Analyses Reveal Novel Targets for Therapeutic Neovascularisation by Resident Endothelial Cells in the Heart**
Ziwen Li, Emmanouil G. Solomonidis, Rodger Duffin, Ross Dobie, Marlene S. Mahalhaes, Beth EP Henderson, Pieter A. Louwe, Univ of Edinburgh, Edinburgh, United Kingdom; Gabriela D'Amico, Kairbaan M Hodivala-Dilke, Barts Cancer Inst, London, United Kingdom; Ajay M. Shah, King's Coll London, London, United Kingdom; Nicholas L. Mills, Univ of Edinburgh, Edinburgh, United Kingdom; Benjamin D. Simons, Univ of Cambridge, Cambridge, United Kingdom; Gillian A. Gray, Neil C. Henderson, Andrew H. Baker, **Mairi Brittan**, Univ of Edinburgh, Edinburgh, United Kingdom

4:40–7:00 PM

Galleria Hall

Poster Session 1 and Reception

Sponsored by Circulation Research

TUESDAY, JULY 30

7:00 AM

Registration

Grand Ballroom Foyer

7:00–8:00 AM

Continental Breakfast/Exhibits

Grand Ballroom Foyer

7:00–8:00 AM

Women in Science Breakfast

Grand Ballroom C-E

Ticket Required to Attend

8:00–9:15 AM

Grand Ballroom A-B

Concurrent Session 3A

Heart Failure in a Dish: From iPSCs to Organoids

Moderators:

Ke Cheng, Raleigh, North Carolina

Zhen Ma, Syracuse, New York

8:00 **Computational Modeling of Cells and Exosomes**
Michael E. Davis, Atlanta, Georgia

8:20 **Making Human Cardiac Organoids for Drug Discovery**
James E. Hudson, Brisbane, Australia

8:40 **Engineering Cardiomyogenic Differentiation and Morphogenesis of Human Pluripotent Stem Cells**
Todd McDevitt, San Francisco, California

Oral Abstract Presentation

9:00 **Identification and Characterization of a Titin Enhancer using CRISPR/Cas9 Genome Editing and hiPSC-Derived Cardiomyocytes**
Meraj Neyazi, Manuel Schmid, Arun Sharma, Christopher N. Toepfer, Yuri Kim, Lauren K Wasson, Seong Won Kim, Daniel M. DeLaughter, Jon A. L. Willcox, Radhika Agarwal, Angela Tai, Joshua M. Gorham, Steven DePalma, Jonathan G. Seidman, Christine E. Seidman, Harvard Medical Sch, Boston, MA

8:00–9:15 AM

Commonwealth Ballroom

Concurrent Session 3B

Emerging Discoveries in Myocardial Metabolism

Moderators:

P. Christian Schulze, Jena, Germany

Kristin Stanford, Columbus, Ohio

8:00 **Deep Network Tracing for Understanding Cardiac Metabolism**
Bradford G. Hill, Louisville, Kentucky

8:20 **AMPK Regulation of Atrial Metabolism and Remodeling**
Lawrence H. Young, New Haven, Connecticut

8:40 **New Insights on Metabolic Control of Structural Remodeling in the Heart**
Heinrich Taegtmeyer, Houston, Texas

Oral Abstract Presentation

9:00 **MCL-1 Promotes Drp1-Mediated Mitochondrial Fission as an Adaptive Response to Stress**
Alexandra G. Moyzis, Navraj S. Lally, Rita A. Najor, Leonardo J. Leon, Åsa B. Gustafsson, Univ of California San Diego, San Diego, CA

9:15–9:45 AM

Grand Ballroom Foyer

Refreshment Break/Exhibits

MONDAY/TUESDAY

Program Agenda (continued)

TUESDAY

9:45–11:00 AM

Grand Ballroom A-B

Concurrent Session 4A

The Future of Cardiac Fibrosis

Moderators:

Jeffrey D. Molkentin, Cincinnati, Ohio

Eric M. Small, Rochester, New York

9:45 **Cardiac Microenvironment Supersedes Developmental Origin for Fibroblast-to-Cardiomyocyte Reprogramming**

Reza Ardehali, Los Angeles, California

10:05 **Fibroblast Roles in Cardiac Maintenance**

Michelle D. Tallquist, Honolulu, Hawaii

10:25 **Selective Targeting of the TGF- β Superfamily: New Opportunities for Cardiac Remodeling**

Navin K. Kapur, Boston, Massachusetts

Oral Abstract Presentation

10:45 **Cardiac Fibroblast as a Critical Constituent of the Cellular Niche Driving Cardiac Maturation**

Fang Yao, Fuwai Hosp, Beijing, China

9:45–11:00 AM

Commonwealth Ballroom

Concurrent Session 4B

Diabetes and Cardiomyopathies: Where are We Now and What is New?

Moderators:

Raj Kishore, Philadelphia, Pennsylvania

Cinzia Perrino, Naples, Italy

9:45 **Obesity-related Immunosenescence and Cardiomyopathy**

Motoaki Sano, Tokyo, Japan

10:05 **O-GlcNAcylation of Histone deacetylase 4 Protects the Diabetic Heart from Failure**

Johannes Backs, Heidelberg, Germany

10:25 **Prevention and Treatment of Duchenne Cardiomyopathy with Hydrogen Sulfide**

Fadi N. Salloum, Richmond, Virginia

Oral Abstract Presentation

10:45 **Role of p53 Acetylation in Mediating Myocardial Angiogenesis and Diabetic Cardiomyopathy**

Heng Zeng, Jian Xiong Chen, Univ Mississippi Medical Ctr, Jackson, MS

11:00 AM–Noon

Grand Ballroom A-B

General Session 5

Keynote Lecture

Moderators:

Elizabeth M. McNally, Chicago, Illinois

Jill Tardiff, Tucson, Arizona

11:00 **From Myosin to Medicines: A Journey to Treat Hypertrophic Cardiomyopathy**

Christine Seidman, Boston, Massachusetts

Noon–1:30 PM

Lunch On Your Own/Poster Viewing/Exhibits

OR

12:30–1:30 PM

Grand Ballroom C-E

Early Career Session

“Oh All the Places You Can Go ... With a Degree”

Moderators:

Kathleen Broughton, San Diego, California

Farid Moussavi-Harami, Seattle, Washington

Panelists:

Jonathan Shelton, San Diego, California

Jane Freedman, Worcester, Massachusetts

Megan Mayerle, Stanford, California

Timothy O'Connell, Minneapolis, Minnesota

1:30–2:45 PM

Grand Ballroom A-B

Concurrent Session 6A

Cardio Oncology:

Protecting the Heart from Cancer Treatment

Moderators:

Sergio Lavendero, Santiago, Chile

Loren E. Wold, Columbus, Ohio

1:30 **Immune-Checkpoint Inhibitor Myocarditis: From Bench to Bedside**

Javid Moslehi, Nashville, Tennessee

1:50 **CYP1 Enzymes in Anthracycline Cardiotoxicity**

Aarti Asnani, Boston, Massachusetts

2:10 **Using Genomic Biomarkers to Predict Doxorubicin-Induced Cardiotoxicity**

Paul Burrige, Chicago, Illinois

Program Agenda (continued)

Oral Abstract Presentation

- 2:30 **Reactivation of Myc Transcription in the Heart Unlocks its Proliferative Capacity**
Catherine H. Wilson, Cambridge Univ, Cambridge, United Kingdom; Megan J. Bywater, QIMR Berghofer Medical Res Inst, Brisbane, Australia; Deborah L. Burkhardt, Cambridge Univ, Cambridge, United Kingdom; Arianna Sabò, IEO, European Inst of Oncology IRCCS, Milan, Italy; Jasmin Straube, QIMR Berghofer Medical Res Inst, Brisbane, Australia; Vera Pendino, IEO, European Inst of Oncology IRCCS, Milan, Italy; James E. Hudson, Gregory A. Quaife-Ryan, QIMR Berghofer Medical Res Inst, Brisbane, Australia; Enzo R. Porrello, 4Murdoch Children's Res Inst and Dept of Physiology, The Univ of Melbourne, Melbourne, Australia; Theresia R. Kress, Bruno Amati, IEO, European Inst of Oncology IRCCS, Milan, Italy; Trevor D. Littlewood, Gerard I. Evan, Cambridge Univ, Cambridge, United Kingdom

1:30–2:45 PM

Commonwealth Ballroom

Concurrent Session 6B

Cardiac Myofilaments: Mechanics and Regulations in Heart Failure

Moderators:

Brandon Biesiadecki, Columbus, Ohio
Ann Margaret Murphy, Baltimore, Maryland

- 1:30 **Stop Making Waves: A New Role for Cardiac Myosin Binding Protein-C in Regulating Contraction**
Samantha Harris, Tucson, Arizona
- 1:50 **Cardiac Myofilament Function: from Health to Heart Disease**
Kerry McDonald, Columbia, Missouri
- 2:10 **Cardiac Myofilament Glycation in Diabetes**
Jonathan A. Kirk, Maywood, Illinois

Oral Abstract Presentation

- 2:30 **Site-specific Acetylation of Cardiac Troponin I Regulates Myofilament Relaxation and Calcium Sensitivity**
Kathleen C. Woulfe, Ying H. Lin, Univ of Colorado, Aurora, CO; William Schmidt, Anthony Cammarato, D. Brian Foster, Johns Hopkins Univ Sch of Med, Baltimore, MD; Brandon J. Biesiadecki, The Ohio State Univ, Columbus, OH; Timothy A. McKinsey, Univ of Colorado, Aurora, CO

2:45–3:15 PM

Grand Ballroom Foyer

Refreshment Break/Exhibits

3:15–4:30 PM

Grand Ballroom A-B

Concurrent Session 7A

Pathways and Mechanisms of Apoptosis

Moderators:

Junichi Sadoshima, Newark, New Jersey
Mark Ziolo, Columbus, Ohio

- 3:15 **Lysosomal Regulation of Survival Signaling**
Abhinav Diwan, St. Louis, Missouri
- 3:35 **Ferroptosis, Iron-dependent Non-apoptotic Cell Death, in Ischemic Heart Disease**
Takashi Matsui, Honolulu, Hawaii
- 3:55 **A Novel lncRNA Protects from Pressure Overload Induced Heart Failure in Mice**
Yuichi Oike, Kumamoto, Japan

Oral Abstract Presentation

- 4:15 **Role of Beclin1 in Regulating Parkin-mediated Mitophagy**
Eileen R. Moreno, Mark A. Lampert, Rita H. Najor, Åsa B. Gustafsson, Univ of California San Diego, La Jolla, CA

3:15–4:30 PM

Commonwealth Ballroom

Concurrent Session 7B

Workshop 1: De-mystifying the NIH

Moderators:

Joan Heller Brown, San Diego, California
Douglas G. Tilley, Philadelphia, Pennsylvania

Panelists:

Abdelouahab Aitouche, Bethesda, Maryland
Margaret Chandler, Bethesda, Maryland
Kimm J. Hamann, Bethesda, Maryland
Renee Wong, Bethesda, Maryland

4:30–7:00 PM

Galleria Hall

Poster Session 2 and Reception

7:00 PM

Pavilion

Early Career Investigator Social Event

Organized in cooperation with the
BCVS Council Early Career Committee

TUESDAY

Program Agenda (continued)

WEDNESDAY, JULY 31

7:00 AM

Registration

Grand Ballroom Foyer

7:00–8:00 AM

Continental Breakfast/Exhibits

Grand Ballroom Foyer

8:00–9:15 AM

Grand Ballroom A-B

Concurrent Session 8A

Cardiac Arrhythmias: From Basic Mechanisms to Precision Medicine

Moderators:

Farah Sheikh, La Jolla, California

Francesca Stillitano, New York, New York

8:00 Physiological Genomics Approach to LQTS Modifier Discovery

Isabelle Deschenes, Cleveland, Ohio

8:20 CurePLaN Consortium: When and How to Treat Our Patients

Pieter Doevendans, Utrecht, Netherlands

8:40 The Role of Innate Immunity in Diabetes Associated Arrhythmic Risk

Samuel C. Dudley, Jr., Minneapolis, Minnesota

Oral Abstract Presentation

9:00 Wnt Signaling Inhibition Rescues Voltage-Gated Na⁺ Current in Brugada Syndrome Patient Cardiomyocytes

Wenbin Liang, Aizhu Lu, Cencen Chu, Jerry Wang, Univ of Ottawa Heart Inst, Ottawa, ON, Canada

8:00–9:15 AM

Commonwealth Ballroom

Concurrent Session 8B

Cardiac Inflammasome in Heart Failure

Moderators:

Shyam Bansal, Columbus, Ohio

Sophie Van Linthout, Berlin, Germany

8:00 Macrophage Circadian Clock Disruption in Heart Failure

Sumanth D. Prabhu, Birmingham, Alabama

8:20 The Inflammasome in Heart Failure: The Next Therapeutic Target?

Brendan M. Everett, Boston, Massachusetts

8:40 Clonal Hematopoiesis, the Inflammasome and Heart Failure

Kenneth Walsh, Charlottesville, Virginia

Oral Abstract Presentation

9:00 Endogenous-Antigen-Specific T Cell Receptor Activation of CD4⁺ T Cells in the Heart is Required for Maladaptive Cardiac Remodeling Due to Pressure Overload

Njabulo Ngwenyama, Francisco Carrillo-Salinas, Tufts Univ, Boston, MA; Mark Aronovitz, Tufts Medical Ctr, Boston, MA; Annet Kirabo, David G Harrison, Vanderbilt Univ, Nashville, TN; Pilar Alcaide, Tufts Univ, Boston, MA

9:15–9:45 AM

Grand Ballroom Foyer

Refreshment Break/Exhibits

9:45–11:00 AM

Grand Ballroom A-B

Concurrent Session 9A

Rare Cardiac Genetic Disorders — New Mechanistic Insights

Moderators:

Bjorn C. Knollmann, Nashville, Tennessee

Aikaterini Kontrogianni-Konstantopoulos, Baltimore, Maryland

9:45 Osteopontin Promotes Left Ventricular Diastolic Dysfunction Through a Mitochondrial Pathway: From Patients to a New Preclinical Model and Back to Patients

Lina Shehadeh, Miami, Florida

10:05 J Wave Syndromes as a Cause of SCD

Charlie Antzelevitch, Wynnwood, Pennsylvania

10:25 Shortened Telomeres: A Hallmark of Heritable Dilated Cardiomyopathies

Helen M. Blau, Stanford, California

Oral Abstract Presentation

10:45 Recombinant Tafazzin Enzyme Replacement Therapy Rescues Metabolic and Functional Defects in a Mouse Model of Barth Syndrome

Corinne J. Thomas, Junya Awata, Tufts Medical Ctr, Boston, MA; Ana A. Dinca, Wei-Ming Chien, Univ of Washington, Seattle, WA; Robert Blanton, Mark Aronovitz, Gregory L. Martin, Lauren Richey, Kelly Tam, Tufts Medical Ctr, Boston, MA; Douglas Strathdee, Beatson Inst of Cancer Res, Glasgow, United Kingdom; Michael T. Chin, Tufts Medical Ctr, Boston, MA

Program Agenda (continued)

9:45-11:00 AM

Commonwealth Ballroom

Concurrent Session 9B

Workshop 2: Fostering Mutually Beneficial Collaborations Between Clinicians and Basic Scientists

Moderators:

Jil Tardiff, Tucson, Arizona

Jennifer Strande, Milwaukee, Wisconsin

Panelists:

Jane Freedman, Worcester, Massachusetts

Thomas Hund, Columbus, Ohio

Christine Seidman, Boston, Massachusetts

Lisa D. Wilsbacher, Chicago, Illinois

11:00-11:45 AM

Grand Ballroom A-B

General Session 10

Outstanding Early Career Investigator Award Competition

- 11:00 **Myocardial B Cells Regulate the Composition of Leukocytes in the Heart as Well as Myocardial Growth**

Luigi Adamo, Cibele Rocha-Resende, Sarah Evans, Jesse Williams, Hao Dun, Wenjun Li, Cedric Mpoy, Buck Rogers, Daniel Kreisel, Kory Lavine, Gwendalyn Randolph, Douglas L. Mann, Washington Univ in St Louis, Saint Louis, MO

- 11:15 **Surgical Bilateral Stellate Ganglionectomy Reduces Mitochondrial Reactive Oxygen Species (mROS) and Prevents Sudden Cardiac Death (SCD) in Non-ischemic Heart Failure (HF)**

Swati Dey, Brian O'Rourke, Johns Hopkins Univ, Baltimore, MD; Deeptankar DeMazumder, Div of Cardiology and of Pharmacology and Systems Physiology, Univ of Cincinnati Coll of Med, Cincinnati, OH

- 11:30 **Inhibition of Autosis Attenuates Ischemia/Reperfusion Injury in the Heart**

Gihoon Nah, Rutgers Univ NJMS, Newark, NJ; Alvaro Fernandez, Univ of Texas Southwestern Medical Ctr, Dallas, TX; Peiyong Zhai, Rutgers Univ NJMS, Newark, NJ; Beth Levine, Univ of Texas Southwestern Medical Ctr, Dallas, TX; Junichi Sadoshima, Rutgers Univ NJMS, Newark, NJ

11:45 AM-1:30 PM

Lunch on Your Own/Poster Viewing/Exhibits

OR

12:30-1:30 PM

Grand Ballroom C-E

Lunch and Learn: It Takes Two to Tango: What I Wish My Mentor/Mentee Told Me

Ticket required to attend.

Moderators:

Federica Accornero, Columbus, Ohio

Michael A. Burke, Atlanta, Georgia

Panelists:

Pilar Alcaide, Boston, Massachusetts

Kendryn K. Baskin, Columbus, Ohio

Isabelle Deschenes, Cleveland, Ohio

Jay Ngwenyama, Boston, Massachusetts

Pearl Quijada, Rochester, New York

Eric M. Small, Rochester, New York

1:30-2:45 PM

Grand Ballroom A-B

Concurrent Session 11A

New Frontiers in the Regulation of Cardiac Gene Expression

Moderators:

Lisandra E. de Castro Brás,

Greenville, North Carolina

Ganesh V. Halade, Birmingham, Alabama

- 1:30 **Epitranscriptome and Exosomes in Remodeling and Repair of the Heart**

Susmita Sahoo, New York, New York

- 1:50 **HuR: An RNA Binding Protein at the Heart of Post-transcriptional Gene Regulation in CVD**

Michael Tranter, Cincinnati, Ohio

- 2:10 **Utilizing Protein Export Inhibitor Drugs in the Treatment of Calcific Aortic Valve Disease**

Joy Lincoln, Milwaukee, Wisconsin

Oral Abstract Presentation

- 2:30 **A Novel Ubiquitination Dependent Pathway Regulating Myocardial Necroptosis and Ischemic Injury**

Xiaoyun Guo, Haifeng Yin, Yi Chen, Siqi Hong, Hui He, Yachang Zeng, Rachel Steinmetz, **Qinghang Liu**, Univ of Washington, Seattle, WA

WEDNESDAY

Program Agenda (continued)

1:30–2:45 PM

Commonwealth Ballroom

Concurrent Session 11B

Molecular and Cellular Aspects of Heart Failure

Moderators:

Lee M. D. Delbridge, Melbourne, Australia

Jack Rubinstein, Cincinnati, Ohio

1:30 **Coordinated Regulation of Inflammatory Response and Lipid Metabolism in Macrophage**
Yumiko Oishi, Tokyo, Japan

1:50 **Modulating Autophagy in Myocardial Ischemia/ Reperfusion Injury and Protection**
Huang-tian Yang, Shanghai, China

2:10 **The Curious Case of DDR2 in the Heart: Saving a Cell and Killing an Organ**
Shivakumar Kailsam, Trivandrum, India

Oral Abstract Presentation

2:30 **Reduced Cardiac Transmembrane Protein 65 Resulted in Dilated Cardiomyopathy and Progressive Cardiac Fibrosis *in vivo***
Allen C. T. Teng, Univ of Toronto, Toronto, ON, Canada; Liyang Gu, Translational Biology and Engineering Program, TRCHR, Toronto, ON, Canada; Michelle Di Paola, Univ of Toronto, Toronto, ON, Canada; Meena Fatah, Diptendu Chatterjee, The Hosp for Sick Children & Res Inst, Toronto, ON, Canada; Thomas Kislinger, Princess Margaret Cancer Ctr, Toronto, ON, Canada; Robert Hamilton, The Hosp for Sick Children & Res Inst, Toronto, ON, Canada; Anthony O. Gramolini, Univ of Toronto, Toronto, ON, Canada

2:45–3:15 PM

Grand Ballroom Foyer

Refreshment Break/Exhibits

3:15–4:30 PM

Grand Ballroom A-B

Concurrent Session 12A

Workshop 3: Advances in Cardiovascular Research — New Techniques

Moderators:

Zhiqiang Lin, Utica, New York

Katherine Yutzey, Cincinnati, Ohio

Panelists:

Carl Wei-Chan Tong, College Station, Texas

Richard Gilbert, Providence, Rhode Island

Thomas Irving, Chicago, Illinois

Peipei Ping, Los Angeles, California

Megan Puckelwartz, Chicago, Illinois

3:15–4:30 PM

Commonwealth Ballroom

Concurrent Session 12B

Cellular Cross-Talk in Heart Failure

Moderators:

Benjamin Prosser, Philadelphia, Pennsylvania

Rongxue (Rosie) Wu, Chicago, Illinois

3:15 **A Novel Role for Brown Adipose Tissue to Regulate Cardiac Function**
Kristin I. Stanford, Columbus, Ohio

3:35 **Novel Regulation of Adiposity by the Heart**
Walter J. Koch, Philadelphia, Pennsylvania

3:55 **Mechanisms of RhoA Regulation in Cardiomyopathy and Fibrosis**
Maria I. Kontaridis, Boston, Massachusetts

Oral Abstract Presentation

4:15 **Multi-Omics Investigation of Cardiomyocyte-to-Fibroblast Crosstalk in Human iPSC Models**
Edward Lau, Mark J. Chandy, Damon R. Williams, Rajani Shrestha, June-Wha Rhee, Joseph C. Wu, Stanford Univ, Palo Alto, CA

4:30–7:00 PM

Galleria Hall

Poster Session 3 and Reception

7:00 PM

Grand Ballroom

BCVS Council Dinner

THURSDAY, AUGUST 1

7:00 AM

Registration

Grand Ballroom Foyer

7:00–8:00 AM

Continental Breakfast

Grand Ballroom Foyer

8:00–9:15 AM

Grand Ballroom A-B

Concurrent Session 13A

Aging and Cardiovascular Risk

Moderators:

Federica del Monte, Charleston, South Carolina

Rajasekaran Namakkal-Soorappan,

Birmingham, Alabama

8:00 **Caveolin as a Therapeutic Target for the Aged Heart**
Hemal Patel, San Diego, California

8:20 **Cardiac Aging and Cellular Senescence**
Genevieve Derumeaux, Créteil, France

Program Agenda (continued)

- 8:40 **The TGF-beta Signaling Cascade in Aging-Associated Post-infarction Heart Failure**
Nikolaos Frangogiannis, Bronx, New York

Oral Abstract Presentation

- 9:00 **Methamphetamine-induced Cardiomyopathy Associated With Mitochondrial Dysfunction, Cardiac Fibrosis and Hypertrophy**
Chowdhury S. Abdullah, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Richa Aishwarya, Dept of Molecular and Cellular Physiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Shafiul Alam, Mahboob Morshed, Gopi K Kolluru, James Traylor, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Sumitra Miriyala, Manikandan Panchatcharam, Dept of Cellular Biology and Anatomy, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Matthew D Woolard, Dept of Microbiology and Immunology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Nicholas E. Goeders, Xiao-Hong Lu, Dept of Pharmacology, Toxicology and Neuroscience, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Paari S. Dominic, Div of Cardiology and Internal Med, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Christopher G. Kevil, A. Wayne Orr, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Norman R. Harris, Felicity N. E. Gavins, Dept of Molecular and Cellular Physiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Md. Shenuarin Bhuiyan, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA

8:00-9:15 AM

Commonwealth Ballroom

Concurrent Session 13B

Novel Therapeutic Targets in Heart Failure

Moderators:

Bradley McConnell, Houston, Texas
Danuta Szczesna-Cordary, Miami, Florida

- 8:00 **HFpEF: Exploring Sex-Specific Phenotypic Diversity and Target Mechanisms**
Lea Delbridge, Melbourne, Australia
- 8:20 **Therapeutic Targeting of Transcription and Translational Program in HFpEF**
Jennifer Van Eyk, Los Angeles, California
- 8:40 **Signalosomes - Nodal Regulators and Therapeutic Targets For Heart Failure**
Michael S. Kapiloff, Stanford, California

Oral Abstract Presentation

- 9:00 **Precision Intervention of Cardiac Remodeling Based on Cellular Composition Principles Uncovered by Single-Cell Transcriptomics**
Peng Yu, Zongna Ren, Li Wang, Fuwai Hosp, Beijing, China

9:15-9:45 PM

Grand Ballroom Foyer

Refreshment Break

9:45-11:00 AM

Grand Ballroom A-B

Concurrent Session 14A

Machine Learning, Big Data and AI in Heart Disease

Moderators:

Juan Banda, Atlanta, Georgia
Coralie Poizat, Utica, New York

- 9:45 **Precision Screening for Familial Hypercholesterolemia Using a Machine Learning Model Applied to National and Local Healthcare Encounter Datasets**
Kelly Myers, Pasadena, California
- 10:05 **Deep Learning and Explainable AI – New Frontiers in Big Data Approach to Complex Cardiovascular Diseases**
Qing Zeng, Washington, District of Columbia
- 10:25 **Machine Learning, Rooted in Fundamental Hypothesis-Driven Science and Bayesian Inference, for Enhanced Personalized Prediction of Cardiovascular Death**
Deeptankar DeMazumder, Baltimore, Maryland

Oral Abstract Presentation

- 10:45 **Reliability Analysis for Image-based Non-invasive Pressure Quantification in Aortorenal Artery Systems**
Hao Wu, Monsurul Khan, **Xiaoping Du**, Indiana Univ-Purdue Univ, Indianapolis, Indianapolis, IN; Alan P Sawchuk, Sch of Medicine, Indiana Univ, Indianapolis, IN; Huidan Whitney YU, Indiana Univ-Purdue Univ, Indianapolis, Indianapolis, IN

9:45-11:00 AM

Commonwealth Ballroom

Concurrent Session 14B

Development of Therapeutics for Heart Failure

Moderators:

Gordon (Teg) Pipes, Pennington, New Jersey
Gayathri Swaminath, South San Francisco, California

- 9:45 **Mavacmanten: Moving Towards a Targeted Therapy for HCM**
Robert McDowell, South San Francisco, California

Program Agenda (continued)

10:05 **APJ Signaling in Heart Failure**
Brandon Ason, South San Francisco, California

10:25 **Non-Invasive Imaging for Heart Failure
Therapeutics Development**
Richard George, Gaithersburg, Maryland

Oral Abstract Presentation

10:45 **Osteopontin Regulates Adult Cardiomyocyte
Division in a Mouse Model of Pressure Overload
Induced Heart Failure**
Camila Iansen Irion, Krista John-Williams, Ahmed
Chahdi, Keyvan Yousefi, Yanelys R. Fernandez,
Konstantinos E. Hatzistergos, Joshua M. Hare, Keith
Webster, Lina A. Shehadeh, Univ of Miami, Miami, FL

11:00 AM
Conference Adjourns

THURSDAY

Abstract Topic List

Cardiac Regeneration, Stem Cells and Tissue Engineering

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Cell Death Mechanisms, Apoptosis, Necrosis and Autophagy

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Excitation-Contraction Coupling

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Genetics and Genomics of Cardiovascular Disease

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Human Cellular Models of Disease

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Inflammation and the Cardiovascular System

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Mechanisms of Myocardial Fibrosis and Remodeling

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Mitochondria and Metabolism

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Myocardial Ischemia, Oxidative Stress and Cardioprotection

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RNA and Cellular Regulation

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Systems Approach to Cardiovascular Biology

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Transcriptional and Epigenetic Regulation of Gene Expression

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Poster Abstracts

130

Development of Bioinspired Synthetic Exosomes With Proangiogenic Potential

Sezin Aday, Harvard Medical Sch, Boston, MA; Inbal Halevy, Tel Aviv Univ, Tel Aviv, Israel; Maryam Anwar, Imperial Coll London, London, United Kingdom; Paolo Madeddu, Univ of Bristol, Bristol, United Kingdom; Susmita Sahoo, Mount Sinai Sch of Med, New York, NY; Enrico Petretto, Duke-NUS Graduate Medical Sch Singapore, Singapore, Singapore; Dan Peer, Tel Aviv Univ, Tel Aviv, Israel; Costanza Emanueli, Imperial Coll London, London, United Kingdom
S. Aday: None. **I. Halevy:** None. **M. Anwar:** None. **P. Madeddu:** None. **S. Sahoo:** None. **E. Petretto:** None. **D. Peer:** None. **C. Emanueli:** None.

131

Cardiomyocyte Renewal and Cardiac Outcomes Following Injury in Young Swine

Emma J Agnew, Nivedhitha Velayutham, Victoria Moore, Tarek Alsaied, Richard Scott Baker, Kyle W Riggs, Farhan Zafar, Katherine E Yutzey, Cincinnati Children's Hosp, Cincinnati, OH
E.J. Agnew: None. **N. Velayutham:** None. **V. Moore:** None. **T. Alsaied:** None. **R. Baker:** None. **K.W. Riggs:** None. **F. Zafar:** None. **K.E. Yutzey:** None.

132

Imaging-Based Assay for Screening of Cell Cycle Modifying Substances in Postnatal Cardiomyocytes

Cora Becker, Univ Clinic of Bonn, Bonn, Germany; Carmen Carillo Garcia, Univ of Kiel, Kiel, Germany; Patricia Freitag, Univ Clinic of Bonn, Bonn, Germany; Dennis Schade, Univ of Kiel, Kiel, Germany; Bernd K Fleischmann, Michael Hesse, Univ Clinic of Bonn, Bonn, Germany
C. Becker: None. **C. Carillo Garcia:** None. **P. Freitag:** None. **D. Schade:** None. **B.K. Fleischmann:** None. **M. Hesse:** None.

133

Exosomal Transfer of Muscle Specific Mir-499 to Endothelial and Endothelial Progenitor Cells Impairs Angiogenesis in Diabetes

Zhongjian Cheng, Venkata Naga Srikanth Garikipati, Maria Cimini, May Trungcao, Chunlin Wang, Vandana Mallareddy, Grace Huang, Jia Yu, Cindy Benedict, Suresh K Verma, Raj Kishore, 3500 N BROAD ST MEBR983, Philadelphia, PA
Z. Cheng: None. **V. Garikipati:** None. **M. Cimini:** None. **M. Trungcao:** None. **C. Wang:** None. **V. Mallareddy:** None. **G. Huang:** None. **J. Yu:** None. **C. Benedict:** None. **S. Verma:** None. **R. Kishore:** None.

134

Direct Reprogramming of Fibroblasts into a Cardiovascular Tissue

Jaeyeaon Cho, Yonsei Univ Coll of Medici, Seoul, Korea, Republic of; Sangsung Kim, Young-sup Yoon, Emory Univ, Atlanta, GA

J. Cho: None. **S. Kim:** None. **Y. Yoon:** None.

135

Hypoxia Induced Defects in 26S Proteasome Machinery Causes Loss Of Immunoprivilege of Allogeneic Mesenchymal Stem Cells

Ejlal Abu-El-Rub, Weiang Yan, Glen Lester Sequiera, Niketa Sareen, **Sanjiv Dhingra**, St. Boniface Gen Hosp Res Cen, Winnipeg, MB, Canada
E. Abu-El-Rub: None. **W. Yan:** None. **G. Sequiera:** None. **N. Sareen:** None. **S. Dhingra:** None.

136

The Role of Glucose as a Promoter for Cardiac Regeneration

Viviana Fajardo, Haruko Nakano, Univ of California Los Angeles (UCLA), Los Angeles, CA; Ellen Lien, Children Hosp Los Angeles (CHLA), Los Angeles, CA; Rong Tian, Univ of Washington, Seattle, WA; Bao Chen, Peter Clark, Austin Nakano, Univ of California Los Angeles (UCLA), Los Angeles, CA
V. Fajardo: None. **H. Nakano:** None. **E. Lien:** None. **R. Tian:** None. **B. Chen:** None. **P. Clark:** None. **A. Nakano:** None.

137

The Role of TNNT3K in Adult Mammalian Heart Regeneration

Peiheng Gan, USC Stem Cell, Los Angeles, CA
P. Gan: None.

138

A Novel Cellular and Genetic Approach to Investigate the Cardioprotective Role Played by Endothelial Nitric Oxide Synthase in Myocardial Infarction

Carmine Gentile, The Univ of Sydney, St Leonards, Australia; Scott Kesteven, Jianxin Wu, Victor Chang Cardiac Res Ctr, Sydney, Australia; Christina Bursill, The Univ of Adelaide, Adelaide, Australia; Michael J Davies, The Univ of Copenhagen, Copenhagen, Denmark; Gemma Figtree, The Univ of Sydney, St Leonards, Australia
C. Gentile: None. **S. Kesteven:** None. **J. Wu:** None. **C. Bursill:** None. **M.J. Davies:** None. **G. Figtree:** None.

139

Systemic Analysis and Discovery of Embryonic Stem Cell-derived Exosomal Long Non-coding RNAs as Potential Therapeutic Modulators of Myocardial Repair

Grace Huang, Temple Univ, Philadelphia, PA
G. Huang: None.

140

Efficacy Evaluation of Transplantation of Three-Dimensional Adipose-derived Stem Cell Sheet With Enhanced Angiogenesis Into Cardiovascular Disease

Hyung Joon Joo, Korea Univ Anam Hosp, Seoul, Korea, Republic of; Jong-Ho Kim, Chi-Yeon Park, Korea Univ Coll of Med, Seoul, Korea, Republic of; Soon Jun Hong, Do-Sun Lim, Korea Univ Anam Hosp, Seoul, Korea, Republic of
H. Joo: None. **J. Kim:** None. **C. Park:** None. **S. Hong:** None. **D. Lim:** None.

141

Identification of a Key Regulator for Activating Bmp Signalling and Promoting Mesodermal Differentiation in Induced Pluripotent Stem Cells

Yoshikazu Kishino, Shinsuke Yuasa, Keiichi Fukuda, Keio Univ Hosp, Tokyo, Japan
Y. Kishino: None. **S. Yuasa:** None. **K. Fukuda:** None.

142

New Approach for Directly Reprogrammed Endothelial Cells

Sangho Lee, Dandan Chen, Young-sup Yoon, Emory Univ, Atlanta, GA
S. Lee: None. **D. Chen:** None. **Y. Yoon:** None.

143

Surface Modification of Stem Cell Exosomes Myocardial Infarction Specific Peptides for Non-invasive Delivery to Ischemic Myocardium

Vandana Mallareddy, Temple Univ, Philadelphia, PA
V. Mallareddy: None.

144

Ultrasound Mediated Transfection of SERCA2a and Cx43 Genes Assisted Bone Marrow Stem Cells Transplantation to Improve Heart Failure and Ventricular Arrhythmia After Myocardial Infarction

Yuming Mu, Wei Wang, Baihetiya Tayier, Lina Guan, First Affiliated Hosp of Xinjiang Medical Univ, Urumqi, China
Y. Mu: None. **W. Wang:** None. **B. Tayier:** None. **L. Guan:** None.

145

Isolation & Characterization of Heart-field Specific Cardiomyocytes

Arash Pezhouman, James L Engel, Ngoc B Nguyen, Rhys JP Skelton, Peng Zhao, Blake W Gilmore, Nicholas Hornstein, Reza Ardehali, ucla, Los Angeles, CA
A. Pezhouman: None. **J.L. Engel:** None. **N.B. Nguyen:** None. **R.J. Skelton:** None. **P. Zhao:** None. **B.W. Gilmore:** None. **N. Hornstein:** None. **R. Ardehali:** None.

Poster Abstracts (continued)

146

Investigating and Inhibiting Neutrophil Extracellular Trap Formation in the Heart

Michael N Sayegh, Lanfang Wang, Eric Y. Shin, Emory Univ, Atlanta, GA; Woojin M. Han, Georgia Institute of Technology, Atlanta, GA; Milton E. Brown, Michael E. Davis, Emory Univ, Atlanta, GA; Andres J. Garcia, Georgia Institute of Technology, Atlanta, GA; Rebecca D. Levit, Emory Univ, Atlanta, GA

M.N. Sayegh: None. **L. Wang:** None. **E.Y. Shin:** None. **W.M.**

Han: None. **M.E. Brown:** None. **M.E. Davis:** None. **A.J.**

Garcia: None. **R.D. Levit:** None.

147

Screening for Developmental and Injury-Induced Genes That Facilitate Heart Regeneration

Akansha M Shah 75235, Miao Cui, Zhaoning Wang, Wei Tan, Ning Liu, Rhonda Bassel-Duby, Eric N Olson, UT Southwestern Medical Ctr, Dallas, TX

A.M. Shah: None. **M. Cui:** None. **Z. Wang:** None. **W. Tan:** None. **N.**

Liu: None. **R. Bassel-Duby:** None. **E.N. Olson:** None.

148

Neonatal Mouse Heart Regeneration is Dependent on Mononuclear Diploid Cardiomyocytes and Paracrine IGF2 Signaling

Hua Shen, Univ of Southern California, Los Angeles, CA; Michaela Patterson, Medical Coll of Wisconsin, Milwaukee, WI; Peiheng Gan, **Henry M Sucov**, Medical Univ of South Carolina, Charleston, SC

H. Shen: None. **M. Patterson:** None. **P. Gan:** None. **H.M.**

Sucov: None.

149

Endothelial-specific Overexpression of Metallothionein Prevents Diabetes Mellitus-induced Impairment in Ischemia Angiogenesis via Preservation of Hif-1 α /sdf-1 in Endothelial Progenitor Cells

Kai Wang, Univ Louisville, Louisville, KY; Xiaozhen Dai, Chengdu Medical Coll, Chengdu, China; Junhong He, Chengkui Yang, Kupper Wintergerst, Paul Epstein, Lu Cai, **Yi Tan**, Univ Louisville, Louisville, KY

K. Wang: None. **X. Dai:** None. **J. He:** None. **C. Yang:** None. **K.**

Wintergerst: None. **P. Epstein:** None. **L. Cai:** None. **Y. Tan:** None.

150

Creation and Characterization of Functional, Human Pediatric-Sized Cardiac Rings With Human iPSC-derived Cardiomyocytes

Karis R Tang-Quan, Camila Hochman-Mendez, Po-Feng Lee, Texas Heart Inst, Houston, TX; Jared F Mike, Lynntech Inc, College Station, TX; Luiz C Sampaio, Doris A Taylor, Texas Heart Inst, Houston, TX

K.R. Tang-Quan: 2. Research Grant; Significant; NSF. **C.**

Hochman-Mendez: None. **P. Lee:** None. **J.F. Mike:** 1.

Employment; Significant; Lynntech Inc.. **L.C. Sampaio:** None. **D.A.**

Taylor: 7. Ownership Interest; Significant; Stem Cell Security, LLC, Miromatrix, Inc..

151

Organized 3D Neo-Angiogenic and Neo-Lymphangiogenic Vascular Networks for Cardiac Regeneration

Xi Lou, **Valarmathi T. Thiruvanamalai**, Jianyi Zhang, Univ of Alabama at Birmingham, Birmingham, AL

X. Lou: None. **M.T. Valarmathi:** None. **J. Zhang:** None.

152

Tip60 Depletion Promotes Cardiomyocyte Proliferation and Attenuates Ischemic Injury in the Adult Heart

Xinrui Wang, Tina C. Wan, Carri Lupton, Mitchell Harrison, John Lough, John A. Auchampach, Medical Coll of Wisconsin, Milwaukee, WI

X. Wang: None. **T.C. Wan:** None. **C. Lupton:** None. **M.**

Harrison: None. **J. Lough:** None. **J.A. Auchampach:** None.

153

Dexamethasone Inhibits Regeneration and Causes Ventricular Aneurysm in the Neonatal Porcine Heart After Myocardial Infarction

Lei Ye, Zhonghao Tao Tao, Sze Jie Loo, Liping Su, Shihua Tan, Desiree Abdurrachim, Natl Heart Ctr Singapore, Singapore, Singapore; Janise Lalic, Teck Hock Lee, Singapore Bioimaging Consortium, Singapore, Singapore; Rusan Tan, Stuart Alexander Cook, Natl Heart Ctr Singapore, Singapore, Singapore

L. Ye: None. **Z. Tao:** None. **S. Loo:** None. **L. Su:** None. **S.**

Tan: None. **D. Abdurrachim:** None. **J. Lalic:** None. **T.**

Lee: None. **R. Tan:** None. **S. Cook:** None.

154

Human Highly Proliferative Cells Acquire Endothelial Phenotype and Promote Healing After Experimental Myocardial Infarction

Haifeng Yin, Sergey Ryzhov, Maine Medical Ctr Res Inst, Scarborough, ME; Michael P Robich, Reed Quinn, Robert S Kramer, Maine Medical Ctr, Portland, ME; Calvin P.h Vary, Maine Medical Ctr Res Inst, Scarborough, ME; Douglas B Sawyer, Maine Medical Ctr Res Inst, Portland, ME

H. Yin: None. **S. Ryzhov:** None. **M.P. Robich:** None. **R.**

Quinn: None. **R.S. Kramer:** None. **C.P. Vary:** None. **D.B.**

Sawyer: None.

155

Lin28 Enhances Cardiac Progenitor Cell Ability to Repair the Heart by Reprogramming Cellular Metabolism

Antonia Yuko, Justin Kurian, Nicole Kasatkin, Kelsey Busch, Fares AlHawaj, Temple Univ Sch of Med- Ctr for Metabolic Disease Res, Philadelphia, PA; Lena Ma, Temple Univ Sch of Med- Cardiovascular Res Ctr, Philadelphia, PA; Mohsin Khan, Temple Univ Sch of Med- Ctr for Metabolic Disease Res, Philadelphia, PA; Sadia Mohsin, Steven Houser, Temple Univ Sch of Med- Cardiovascular Res Ctr, Philadelphia, PA; Hong Wang, Temple Univ Sch of Med- Ctr for Metabolic Disease Res, Philadelphia, PA

A. Yuko: None. **J. Kurian:** None. **N. Kasatkin:** None. **K.**

Busch: None. **F. AlHawaj:** None. **L. Ma:** None. **M. Khan:** None. **S.**

Mohsin: None. **S. Houser:** None. **H. Wang:** None.

156

Endogenous Cardiomyocyte Dedifferentiation and Cycling Revealed by Single-Cell Imaging and Single-Nucleus Transcriptomic Analysis

Yiqiang Zhang, Nuria Gago-Lopez, Ning Li, Zhenhe Zhang, Naima Alver, William R MacLellan, Univ Washington, Seattle, WA

Y. Zhang: None. **N. Gago-Lopez:** None. **N. Li:** None. **Z.**

Zhang: None. **N. Alver:** None. **W.R. MacLellan:** None.

160

Atg7-Dependent Activation of Mitochondrial Autophagy in Cardiomyocytes

Chowdhury S Abdullah, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Richa Aishwarya, Dept of Molecular and Cellular Physiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Shafiu Alam, Mahboob Morshed, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Sumitra Miriyala, Manikandan Panchatcharam, Dept of Cellular Biology and Anatomy, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA; Md. Shenuarin Bhuiyan, Dept of Pathology and Translational Pathobiology, Louisiana State Univ Health Sciences Ctr-Shreveport, Shreveport, LA

C.S. Abdullah: None. **R. Aishwarya:** None. **S. Alam:** None. **M.**

Morshed: None. **S. Miriyala:** None. **M. Panchatcharam:** None. **M.**

Bhuiyan: None.

161

IL4 Increases Phagocytosis of Necrotic Cells in a Cd36-dependent Manner

Mingzhuang Chen, Chinese Univ of Hong Kong, Hong Kong, China

M. Chen: None.

Abstracts (continued)

162

Liproxstatin-1 Treatment Protects the Myocardium Against I-R Injury By Decreasing VDAC1 Levels and Increasing GPX4 Activity
Yansheng Feng, Ngonidzashe B Madungwe, Nathalie Tombo, Li Liu, Abdulhafiz Aliagan, Jean C Bopassa, UT Health at San Antonio, San Antonio, TX

Y. Feng: None. **N.B. Madungwe:** None. **N. Tombo:** None. **L. Liu:** None. **A. Aliagan:** None. **J.C. Bopassa:** None.

163

NFkB Promotes Oxidative Stress-induced Necrosis and Ischemia Reperfusion Injury Through NRF2-ARE Pathway
Xiaoyun Guo, Yi Chen, Rachel Steinmetz, Siqi Hong, Hui He, Yachang Zeng, **Qinghang Liu**, Univ of Washington, Seattle, WA
X. Guo: None. **Y. Chen:** None. **R. Steinmetz:** None. **S. Hong:** None. **H. He:** None. **Y. Zeng:** None. **Q. Liu:** None.

164

Hypoxia-Induced Cardiomyocyte Mitophagy and Mitochondrial Permeability Transition are Inhibited by Bnip3 Phosphorylation
Matthew D Martens, Jared T Field, Wajihah Mughal, Christof Rampitsch, Tammy Ivanco, Univ of Manitoba, Winnipeg, MB, Canada; William Diehl-Jones, Athabasca Univ, Athabasca, AB, Canada; Joseph W Gordon, Univ of Manitoba, Winnipeg, MB, Canada
M.D. Martens: None. **J.T. Field:** None. **W. Mughal:** None. **C. Rampitsch:** None. **T. Ivanco:** None. **W. Diehl-Jones:** None. **J.W. Gordon:** None.

165

A Genome-scale Crispr Screen Identifies Modulators Of Doxorubicin-induced Cardiotoxicity
Christopher McDermott-Roe, Univ of Pennsylvania, Philadelphia, PA
C. McDermott-Roe: None.

166

MCL-1 Facilitates the Removal of Damaged Mitochondria via the Mitophagy Receptor BNIP3
Alexandra G Moyzis, Navraj S Lally, Rita A Najor, Leonardo J Leon, Åsa B Gustafsson, Univ of California San Diego, La Jolla, CA
A.G. Moyzis: None. **N.S. Lally:** None. **R.A. Najor:** None. **L.J. Leon:** None. **Å.B. Gustafsson:** None.

167

Increased Mitophagy and Lysophagy in High Fat Diet and Streptozotocin Induced Diabetic Cardiomyopathy
Joy R Patel, Satoru Kobayashi, Qiangrong Liang, New York Institute of Technology Coll of Osteopathic Med, Old Westbury, NY
J.R. Patel: None. **S. Kobayashi:** None. **Q. Liang:** None.

168

Remote Ischemic Preconditioning Rescues Cardiac Dysfunction in Atg5 Knockdown Mice
Fangfei Wang, Quan He, Andrew N Redington, Cincinnati Children Hosp Medica, Cincinnati, OH
F. Wang: None. **Q. He:** None. **A.N. Redington:** None.

170

Exosomal AAV-mediated SERCA2a Gene Transfer Improves Cardiac Function in a Mouse Model of Heart Failure
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M. Adamiak: None. **D. Jha:** None. **Y. Liang:** None. **P. Mathiyalagan:** None. **N. Agarwal:** None. **E. Kohlbrenner:** None. **E. Chepurko:** None. **D. Jeong:** None. **D. Ceholski:** None. **N. Dubois:** None. **R. Hajjar:** None. **S. Sahoo:** None.

171

The Effects of Adolescent Binge Alcohol Exposure to Cardiovascular Structure and Function
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L. Ai: None. **E. Perez:** None. **M. Heroux:** None. **A. Zlobin:** None. **A. Asimes:** None. **Q. Cao:** None. **C.S. Chung:** None. **T.R. Pak:** None. **J.A. Kirk:** None.

172

Spatially Distributed N-glycomic Regulation in Human Aortic Valve Development and Disease
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173

Development of an Auto-Segmentation Technique Using a Convolutional Neural Network for the Segmentation of the Ventricular Cavity in Zebrafish
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Z. Bailey: None. **X. Ma:** None. **M. Hirsch:** None. **W. Kim:** None. **J. Lee:** None.

174

Investigating Subclinical Cardiotoxicity in Long-term Breast Cancer Survivors Following Chemotherapy With DENSE-based 3D Strain Analysis
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B. Baldwin: None. **S. Johnson:** None. **C. Malozzi:** None. **M.V. Cohen:** None. **M.S. Figarola:** None. **A. Choudhry:** None. **E. Rel:** None. **A.Y. Yudice:** None. **S.A. McQuiston:** None. **J. Kar:** None.

175

Evaluation of Sepsis-Related Cytokines on Endothelial Cell Permeability
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C.E. Campbell: None. **W.A. Boisvert:** None.

176

The Effects of Age, Menopause, and Body Mass Index on Blood Pressure and Radial Pulse Wave in Women
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177

Hemodynamic Status from Photoplethysmography, Signs of Successful Pregnancy

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178

Development of a New Structural Family of Microbial Choline Trimethylamine Lyase Inhibitors for the Treatment and Prevention of Cardiovascular Disease

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A.S. Duzan: None.

179

Resistin Regulates ATP-citrate lyase Expression a Key Metabolic Enzyme of Lipogenesis and Histone acetylation in Human Macrophage

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N. Haider: None. **P. Moly:** None. **W. Lu:** None. **W. Zhou:** None.

180

Blood Outgrowth Endothelial Cell-derived Exosomes Mediate Therapeutic Neovascularization

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181

Anti-inflammatory Effects of Macitentan on Monocrotaline-induced Pulmonary Hypertension in a Rat Model

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182

Left Ventricular Diastolic Dysfunction in HIV-infected ART-naïve and HIV-negative Tanzanian Adults: A Cross-sectional Study

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183

Phosphodiesterase 9 Inhibition Improves Cardiometabolic Profile in Female Mice Independent of Estrogen Status

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S. Mishra: None. **G. Zhu:** None. **S. Rodriguez:** None. **W. Wong:** None. **D. Kass:** None.

184

Cardioprotective Effects of Brain-derived Neurotrophic Factor rs6265 Polymorphism in Duchenne Cardiomyopathy

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185

Role of Substance P in Pathogenesis of Chemotherapy Associated Cardiotoxicity.

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A. Legi: None. **P. Robinson:** None.

186

Superiority of Sacubitril/Valsartan Over Valsartan Alone in Attenuating Pressure Overload-induced Cardiac Fibrosis and Oxidative Stress

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X. Li: None. **J. Braza:** None. **U. Mende:** None. **P. Zhang:** 2. Research Grant; Significant; This work was supported by an investigator-initiated preclinical trial from Novartis Pharmaceuticals Corporation..

190

Polycystin-1 Assembles with Kv Channels to Govern Cardiomyocyte Repolarization and Contractility

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F. Altamirano: 2. Research Grant; Significant; AHA 16POST30680016, AHA 19CDA34680003. **G.G. Schiattarella:** None. **K.M. French:** None. **S. Kim:** None. **F. Engelberger:** None. **S. Kyrychenko:** None. **E. Villalobos:** None. **D. Tong:** None. **J.W. Schneider:** None. **C.A. Ramirez-Sarmiento:** None. **S. Lavandero:** None. **T.G. Gillette:** None. **J.A. Hill:** None.

191

Difference in Calcium Sensitivity Between Right and Left Ventricles with Lower Expression of Calcium Binding Proteins in Right Ventricular Myocytes

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Y. Jeon: None. **J. Jang:** None. **J. Youm:** None. **Y. Zhang:** None. **S. Kim:** None.

Abstracts (continued)

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Sex Dependent Differences in Cardiac Myocyte Excitation-Contraction Coupling After Chronic Stimulation of the Delta or Kappa Opioid Receptors During Normoxic and Hypoxic Conditions
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M. Klos: None. **R. Ahmad:** None. **I. Pua:** None. **K. Hicks:** None. **S. Suresh:** None. **S. Morgenstern:** None. **E. Devaney:** None.

194

Precision Intervention of Cardiac Remodeling Based on Cellular Composition Principles Uncovered by Single-Cell Transcriptomics
Peng Yu, Zongna Ren, Li Wang, Fuwai Hosp, Beijing, China

P. Yu: None. **Z. Ren:** None. **L. Wang:** None.

195

Epigenetic Mechanisms Underlying Anthracycline-Induced Cardiotoxicity

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C. Chen: None. **Y. Lim:** None. **W. Tan:** None. **G.C. Anene-Nzelu:** None. **S. Ng:** None. **Y. Li:** None. **T.L. Danh:** None. **R. Foo:** None.

196

CELA2A is a Pluripotent Insulinotropic Peptide

Sahar Esteghamat, James Samuel Broughton, Emily Smith, Rebecca Cardone, Tarun Tyagi, Mateus Guerra, András Szabó, Nelson Ugwu, Mitra Mani, Bani Azari, Gerald Kayingo, Sunny Chung, Mohsen Fathzadeh, Ephraim Weiss, Jeffrey Bender, Shrikant Mane, Richard Lifton, Adebawale Adeniran, Michael Nathanson, Fred Gorelick, John Hwa, Miklós Sahin-Tóth, Renata Belfort-DeAguiar, Richard Kibbey, Arya Mani, Yale Sch of Med, New Haven, CT

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197

Transcription Factor Interactome in Human iPS-derived Cardiac Progenitors is Enriched for Proteins Associated with Congenital Heart Disease

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198

Single-cell Reconstruction of Differentiation Trajectory Reveals a Critical Role of Ets1 in Human Cardiac Lineage Commitment
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199

The Role of miR-987 in Homeostasis of the Aging Heart in *Drosophila*

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A.M. Hohman: None. **E.M. McNeill:** None.

200

Targeting the Highly Abundant Circular RNA, circHeart, in Cardiomyocytes Attenuates Pressure Overload Induced Hypertrophy
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T.B. Lim: None.

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Roles of PIKfyve in Cardiac Fibroblast Migration

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G. Luo: None. **L.S. Weisman:** None.

202

The R21C Mutation in Troponin I Has a Founder Effect in South Lebanon and Causes Malignant Hypertrophic Cardiomyopathy
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A. Fahed: None. **G. Nemer:** None. **F. Bitar:** None. **S. Arnaout:** None. **A. Abche:** None. **J. Ware:** None. **M. Batrawi:** None. **A. Khalil:** None. **S. DePalma:** None. **B. McDonough:** None. **M. Arabi:** None. **J. Seidman:** None. **C. Seidman:** None.

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Reliable Biomimetic Culture System for Pig and Human Heart Slices

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R. Abouleisa: None. **Q. Ou:** None. **Z. Jacobson:** 1. Employment; Significant; Tenaya Therapeutics. 7. Ownership Interest; Significant; Tenaya Therapeutics. **X. Tang:** None. **S.M. Hindi:** None. **A. Kumar:** None. **K.N. Ivey:** 1. Employment; Significant; Tenaya Therapeutics. 7. Ownership Interest; Significant; Tenaya Therapeutics. **G. Giridharan:** None. **A. Al-Baz:** None. **K. Brittan:** None. **B. Rood:** None. **B.G. Hill:** None. **S.P. Jones:** None. **R. Bolli:** None. **T.M. Mohamed:** 7. Ownership Interest; Significant; Tenaya Therapeutics.

209

iPSC Derived Cardiomyocytes Reproduce Divergent Phenotypes Caused by a LQTS Type-1 Likely Pathogenic Mutation

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210

Transcriptomic Changes During Induced Pluripotent Stem Cell-derived Neural Crest Cell Differentiation Highlight Genes Involved in Endocardial Cushion and Cardiac Outflow Tract Development

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211

Substrate Elasticity Impacts Duchenne Muscular Dystrophy Cardiomyopathy Progression

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G. Pardon: None. **A.C. Chang:** None. **B.L. Pruitt:** None. **H.M. Blau:** None.

212

Hypertrophic Cardiomyopathy Mutations With Opposite Effects on β -myosin Biomechanics Show Similar Structural and Biomechanical Phenotypes in Human Induced Pluripotent Stem Cell Derived Cardiomyocytes (hipsc-cms)

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A. Schroer: None. **G. Jung:** None. **K. Kooiker:** None. **A. Adhikari:** None. **L. Song:** None. **C. Liu:** None. **K. Ruppel:** 8. Consultant/Advisory Board; Modest; MyoKardia. **S. Wu:** None. **B. Pruitt:** None. **J. Spudich:** 7. Ownership Interest; Modest; MyoKardia. **D. Bernstein:** None.

213

Single-Cell RNA Sequencing Reveals Pathways Dysregulation by a NFATc1 Mutation in Patient-Specific Cardiomyocytes Derived From Inducible Pluripotent Stem Cells

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N.S. Torres: None. **K. Wang:** None. **E. Coca:** None. **A. Carey:** None. **C. Maguire:** None. **S. Cho:** None. **M. Tristani-Firouzi:** None.

214

Effect of Matrix Stiffness on Adult Cardiomyocytes Using Dynamic, Tunable, and Reversible Magnetorheological PDMS Substrates

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A. Vite: None. **M. Caporizzo:** None. **E. Corbin:** None. **K. Bedi:** None. **C. Chen:** None. **B. Prosser:** None. **K. Margulies:** None.

215

Assessing the Efficacy of Novel RYR2 Inhibitor, EL20, in Induced Pluripotent Stem Cell Derived Cardiomyocytes from a Catecholaminergic Polymorphic Ventricular Tachycardia Patient

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T.A. Word: None. **A. Landstrom:** None. **A. Quick:** None. **M. Shak:** None. **C. Miyake:** None. **H.D. Allen:** None. **X. Wehrens:** None.

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Pathophysiological Significance of Browning of Perivascular Adipose Tissue in the Development of Atherosclerosis

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Y. Adachi: None. **K. Ueda:** None. **K. Ito:** None. **E. Takimoto:** None. **I. Komuro:** None.

220

Gut Microbiota Alterations Associate with T Cell Activation and Adverse Cardiac Remodeling in Response to Cardiac Pressure Overload

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221

IKKe Deficiency Aggravates Cardiac Inflammation With Dysregulation of p52 and p38 in Myocardial Infarction

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H. Cho: None. **Y. Kim:** None. **J. Jun:** None. **D. Cho:** None. **M. Cho:** None. **Y. Ahn:** None.

222

Single Cell Analysis of the Emergency Hematopoietic Response to Myocardial Infarction

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Dynamic Multimodality Imaging Monitored Anti-inflammation Therapy for Myocardial Infarction: Exploring the Role of MCC950 in Murine Model

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Sub-cytotoxic Levels of Heavy Metals Induce Pro-inflammatory Signaling in the Aortic Endothelium without Impairing Flow-Mediated Dilation in Rats

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P. Nabavizadeh: None. **S. Ibrahim:** None. **A. Fries:** None. **J. Liu:** None. **R. Derakhshandeh:** None. **M.L. Springer:** None.

225

Evaluating Pro-Inflammatory and Pro-Resolving Lipid Modulations in an Oral 15-HETE Model of Pulmonary Hypertension

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Apoai Mimetic Peptide 6f Prevent Pulmonary Hypertension Induced by Oxidized Lipids

Gregoire Ruffenach, Ellen O'Connor, Mylene Vaillancourt, Shervin Sarji, Nancy Cao, Laila Aryan, Christine Cunningham, Victor Grijalva, Soban Umar, Srinivasa Reddy, Mansoureh Eghbali, Donya Moazeni, Univ of California, Los Angeles, CA
G. Ruffenach: None. **E. O'Connor:** None. **M. Vaillancourt:** None. **S. Sarji:** None. **N. Cao:** None. **L. Aryan:** None. **C. Cunningham:** None. **V. Grijalva:** None. **S. Umar:** None. **S. Reddy:** None. **M. Eghbali:** None. **D. Moazeni:** None.

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Intravital Multiphoton Microscopy Reveals Increased Capillary Patrolling by Leukocytes and Cardiomyocyte Dysfunction in High Fat Diet Induced Hypertrophy

David M Small, Nathaniel H Allan-Rahill, Michael RE Lamont, Salomon Djakpa, Marvarakumari G Jhala, Yvette Zhu, Nozomi Nishimura, Cornell Univ, Ithaca, NY
D.M. Small: None. **N.H. Allan-Rahill:** None. **M.R. Lamont:** None. **S. Djakpa:** None. **M.G. Jhala:** None. **Y. Zhu:** None. **N. Nishimura:** None.

228

Spatiotemporal Dynamics of Macrophages in vitro and in vivo

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N. Taghdiri: None. **K.M. Huang:** None. **R.H. Kohler:** None. **R. Weissleder:** None. **K.R. King:** None.

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TWEAK-Fn14 Axis: A Potential Therapeutic Target for Treating Heart Failure

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230

Disturbed Blood Flow-induced Platelet Transmigration Via C-type Lectin-like Receptor-2 Modulating Vascular Inflammation
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235

A Micropeptide Regulator of Voltage-gated Potassium Channels Controls Cardiac Rhythm

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236

Biphasic Reprogramming of Ventricular Cardiomyocytes to Pacemaker Cells by Tbx18

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237

Identifying the Transcriptome Signature of Calcium Channel Blocker in Human iPSC-Derived Cardiomyocytes

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238

Critical Role of Ryanodine Receptor Bound Calmodulin to Prevent Catecholaminergic Polymorphic Ventricular Tachycardia

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239

Selective Right-sided Electrical Remodeling in A Pure Model Of Pulmonary Hypertension Promotes Micro-reentrant Arrhythmias

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240

Mistrafficking of Integrin $\beta 1d$ Contributes to Ca^{2+} -handling Disorder and Catecholaminergic Polymorphic Ventricular Tachycardia Under Cardiac Stress

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241

Pharmacological Evaluation of Novel Anti-thrombospondin-1 Decoy Strategy for Prophylaxis of Atrial Fibrillation-associated Ischemic Stroke
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242

Sk Channels in the Vascular Endothelial Cells

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245

PRMT7 Deficiency Exacerbates Cardiomyopathy Induced Doxorubicin in Ovariectomized Mice

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246

Applying a Quantitative, Cell Surface Glycoproteomic Approach to Understanding the Role of Human Cardiac Fibroblasts in Advanced Heart Failure

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247

Phagocytosis-mediated Activation of Smad3 in Macrophages Mediates Anti-inflammatory Transition and Protects From Adverse Post-infarction Remodeling

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248

Microfibrillar-Associated Protein 4 Regulates Maladaptive Cardiac Remodeling

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249

ERBB2 and beta-1-Adrenergic Receptor Cross-talk Underlies Cardiac Dysfunction

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250

Smad3-Mediated Induction of Smad7 in Activated Myofibroblasts Protects the Remodeling Myocardium

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251

Mitochondrial Calcium Uniporter Regulates Proliferative Activity of Cardiac Fibroblasts Under Angiotensin II Stimulation

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252

Activated Fibroblast-specific Deletion of RhoA Reduces Cardiac Fibrosis Through Regulation of the Non-canonical p38-MAPK Signaling Pathway

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253

Pharmacological and Genetic Inhibition of Transient Receptor Potential Canonical 6 (TRPC6) as a Novel Treatment for Heart Failure and Duchenne Muscular Dystrophy (DMD) Pharmacological and Genetic Inhibition of Transient Receptor Potential Canonical 6 (TRPC6) as a Novel Treatment for Heart Failure and Duchenne Muscular Dystrophy (DMD)

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254

Kinase-dead Pi3ky Expression in the Cardiac Myocytes Regulates Fibroblast Signaling and Myofibroblast Differentiation

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255

Novel Role for Free Fatty Acid Receptor 4 in Response to Pathologic Pressure Overload-Induced Heart Failure in Mice

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256

Cardiac Fibroblast-derived Exosomes Mediate Endothelial Dysfunction and Heart Failure

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Cortical Bone Stem Cell-Derived Exosomes Alter Wound Healing Response in Cardiac Fibroblasts and Cardiac Endothelial Cells

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258

Elucidating Sex Differences in Stress-related Atrial Remodeling and AF Risk in a Mouse Model of Atrial Dysfunction

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259

Resistin Accelerates Fibroblast-Myofibroblast Differentiation and Induces Myocardial Fibrosis

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260

The ER Unfolded Protein Response Effector, ATF6, Reduces Fibrosis and Moderates Activation of Cardiac Fibroblasts

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261

Excessive O-GlcNAcylation Causes Heart Failure

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262

Gene Expression Profiling of Hypertrophic and Failing

Cardiomyocytes Identifies New Players Involved in Heart Failure

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263

MYH14 Protects Against of Isoproterenol-induced Left Ventricular Hypertrophy and Fibrosis

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264

EPRS is a Critical Translational Control Factor in Cardiac Fibrosis

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265

Thyrotoxic Pericarditis in a Mouse Model of Graves' Disease

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266

Sex Differences in Anthracycline-Induced Cardiotoxicity in Young Mice

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269

Identification of Novel MICU1 Interactors Independent of the mtCU Complex

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270

Loss of S100A1 Protein Negatively Impacts Glucose Metabolism and Energy Homeostasis in Cardiomyocytes

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271

Reduced Expression of the Cardiac Sodium Channel Nav1.5 Triggers Enhanced Fatty Acid Metabolism and Oxidative Stress

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272

Cardioprotective Effects of Plant-derived Fat in Low Carbohydrate Diet on the Progression of Heart Failure

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273

The Role of Estrogen in Protection of Skeletal Muscle Function in Diastolic Dysfunction

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274

Mitochondrial Translation Machinery Defects Causes Cardiomyopathy and *in vivo* Functional Screening of Therapeutic Targets

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275

Modulation of Energy Metabolism by Metformin Prevents Diet Induced Cardiac Dysfunction in a Mouse Model of Adult Congenital Heart Disease

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276

Maternal High Fat, High Sucrose Diet-induced Cardiac Mitochondrial Abnormalities in the Offspring are Transmitted via the Oocyte Nucleus

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277

Neonatal Cardiomyocyte-Released Signaling Protein Reduces Adipocyte Differentiation

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278

Reduced HtrA2 Protein Levels in Mitochondria but Elevated Levels in Cytosol of Left Ventricular Myocardium of Dogs with Chronic Heart Failure

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279

Increased Drp1 Acetylation Mediates Lipid Overload-induced Cardiomyocyte Death & Heart Dysfunction

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The Effect of YAP/TAZ on Glycolysis and Mitochondrial Oxidative Phosphorylation in Cardiomyocytes

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281

Single Cell Analysis of Postnatal Heart Development and Disease Juanjuan Zhao, Katherine Lupino, Children's Hosp of Philadelphia, Philadelphia, PA; **Liming Pei**, Children's Hosp of Philadelphia/Univ of Pennsylvania, Philadelphia, PA

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282

Mitochondrial Complex I Induced Myocardial Stunning Following Cardiopulmonary Resuscitation

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284

Drp1 Protects the Heart Against High Fat Diet-Induced Diabetic Cardiomyopathy

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285

Oxidized Low Density Lipoprotein and Angiotensin II Causes Vascular Senescence Via AT1R Signal-mediate Mitochondrial Fission

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286

Smyd1 is Required for Cell Survival During Glucose Deprivation Amira Sabry, Keiko Cawley, Katie Sciuto, Amanda Horiuchi, David Nix, Chris Stubborn, Yukio Saijoh, Alexey V Zaitsev, **Junco S**

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287

Altered Mitochondrial Flash Activity and mPTP Opening in the Aged Heart Are Reversed by Elamipretide Treatment

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288

Mitoq Regulates Redox-related Non-coding Rnas to Improve Mitochondrial Network in Pressure Overload Heart Failure
Jiajia Song, Seulhee Kim, Mary N Latimer, Kah Yong Goh, Sumanth D Prabhu, Gangjian Qin, Victor Darley-Usmar, Xiaoguang Liu, Adam R Wende, Martin E Young, **Lufang Zhou**, Univ of Alabama Birmingham, Birmingham, AL

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Neddylolation is Essential for Cardiac Metabolic Maturation in the Developing Heart

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Lpp3 Deficiency Impairs Mitochondrial Function And Enhances Myocardial Lpa Mediated Signaling

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295

Cysteine 202 of Cyclophilin D is a Site of Multiple Post-translational Modifications and Plays a Role in Cardioprotection

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296

B7-33, a Functionally Selective Relaxin Receptor 1 Agonist, Exerts Protective Effects Against Myocardial Ischemia-Reperfusion Injury in Mice

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297

Therapeutic Effects of SK Channel Activator on Cardioprotection in the Setting of Cardioplegic Ischemia-Reperfusion and Cardiopulmonary Bypass

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298

Downregulation of Delta and Kappa Opioid Receptors in Post-heart Transplantation in Human and Rats

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299

Engineering Rodent TRPV1 to Mimic Chicken TRPV1 Reduces Capsaicin-induced Calcium Influx in H9C2 Cells

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300

Ischemia and Reperfusion Injury Following Cardioplegic Arrest is Attenuated by Age and Testosterone Deficiency in Male but Not Female Mice

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301

Bone Marrow Niche-Mediates Cardiac Repair is Associated With Adiponectin in Retnla Deficiency

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302

Role of Acidic pH in Linking SIRT1 and Cardioprotective Metabolism

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303

Exercise-induced Autophagy and Nadph Oxidase 2 Downregulation Prevents Cardiotoxicity Induced by Doxorubicin

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304

Pgc1a Activation by Pterostilbene Ameliorates Acute Doxorubicin Cardiotoxicity via Reducing Mitochondrial Oxidative Stress Through Enhancing Ampk and Sirt1 Cascades

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306

DJ-1 Preserves Mitochondrial Function in the Ischemic Heart by Reducing the Glycation of Complex I

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307

Chemogenetic Activation of Paraventricular Oxytocin Neurons Reduces Cardiac Dysfunction During Heart Failure

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308

Role of Snf1-related Kinase as a Regulator of Chromatin Modifications and Dna-damage Response in Heart Injury

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309

Cardioprotective Effect of Canstatin Against Myocardial Infarction in Rats

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310

Time-Dependent Changes in Myocardial Edema Overestimate the Ischemic Area-at-Risk Up to One Week After Reperfusion Myocardial Infarction in Swine

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311

Signal Transducer and Activator of Transcription 3 Inhibits the Opening of Mitochondrial Calcium Uniporter Against Cardiac Ischemia/reperfusion in Hydrogen Peroxide Postconditioning

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312

SGLT1 is Essential for Cardioprotection During Ischemia-Reperfusion Injury via Enhanced Glucose Utilization in Diet-induced Obese Mice

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313

Inhibition of Resistin Protects against Heart Failure Injury by Targeting Gadd45 α

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320

MicroRNA-133a Attenuates the Development of Thoracic Aortic Aneurysm

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321

Nanopore and Poly(a)-sequencing Reveals a New Role for Rbfox2 in Alternative Polyadenylation and Poly(a)-sequencing Reveals a New Role for Rbfox2 in Alternative Polyadenylation Regulation

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322

Identification of Novel Long Non Coding RNAs Involved in Pitx2>Wnt>microRNA Signaling Pathways Leading to Atrial Fibrillation

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323

A Novel Human Specific Long Noncoding RNA PG1 Controls Human Cardiogenesis via Regulating Beta-catenin Activity

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324

Translation Determines the Acute Cardiac Response to Ischemia/ Reperfusion

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325

Characterization of Circular RNAs in Vascular Smooth Muscle Cells With Vascular Calcification

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326

FTO-mediated mRNA Demethylation Regulates Cardiac Contractile Protein Expression and Function

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Lebeche: None. **R.J. Hajjar**: None. **S. Sahoo**: None.

327

MicroRNA-574-FAM210A Axis Maintains Mitochondrial Translational Homeostasis and Influences Pathological Cardiac Remodeling

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330

A HaloTag-TEV Genetic Cassette for Mechanically Probing Native Titin Jaime Andrés Rivas-Pardo, Columbia Univ, New York, NY; Yong Li, Univ of Muenster, Muenster, Germany; Zolt Mártonfalvi, Semmelweis Univ, Budapest, Hungary; Rafael Tapia-Rojo, Columbia Univ, New York, NY; Andreas Unger, Univ of Muenster, Muenster, Germany; Ángel Fernández-Trasancos, Elias Herrero-Galán, Diana Velázquez-Carreras, CNIC, Madrid, Spain; Wolfgang A Linke, Univ of Muenster, Muenster, Germany; Julio M Fernández, Columbia Univ, New York, NY; **Jorge Alegre-Cebollada**, CNIC, Madrid, Spain

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Trasancos: None. **E. Herrero-Galán**: None. **D. Velázquez-**

Carreras: None. **W.A. Linke**: None. **J.M. Fernández**: None. **J.**

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331

Loss of Myosin Binding Protein H-Like Causes Cardiac Conduction Abnormalities

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Sell: None. **M. Broman**: None. **B. Laforest**: None. **M.J.**

Pickelwartz: None. **L.D. Wilsbacher**: None. **A.**

Wasserstrom: None. **G.I. Fishman**: None. **E. McNally**: None.

332

Pharmacologic Characterization of the Cardiac Myosin Inhibitor, CK-3773274: A Potential Therapeutic Approach for Hypertrophic Cardiomyopathy

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333

Cardiomyocyte Hypercontractility is an Adaptational Response to Stiffness in High-Fat Diet Mice

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Delbridge: None.

334

Cardiac Myosin Binding Protein C Phosphorylation Regulates Calcium Homeostasis

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M. Kumar: None. **K. Haghighi**: None. **E. Kranias**: 3. Other Research Support; Significant; LEDUCQ FOUNDATION GRANT. **S.**

Sadayappan: 2. Research Grant; Significant; R01 HL130356, R56 HL139680, R01 AR067279, R01 HL105826.

335

Titin Truncations in Human Heart Tissue

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336

The Effect Of Phosphodiesterase 9a Inhibition In 2 Mouse Models Of Diastolic Dysfunction

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337

Cell-Substrate Adhesion Regulates Early Steps of Myofibrillogenesis in Human Cardiomyocytes

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338

Motivating Myosin: 2 deoxy-ATP Induced Structural Alterations That Increase Myosin Activity

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339

Biomechanics and Calcium Handling of Thin Filament Hypertrophic Cardiomyopathy Variants

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340

Myosin Regulatory Light Chain: A Major Player in Defining the 'OFF' State of Cardiac Myosin

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341

Efficient Large-scale Sarcomere Tracking (sarctrack) to Assess HCM Variants in iPSC-CMs

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345

AAV1.SERCA2a Gene Therapy as a Novel Targeting Approach Against Pulmonary Fibrosis

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346

Tuberin S1365 Phosphorylation Regulates Mechanistic Target of Rapamycin Complex 1 (mTORC1) Pathological Signaling While Sustaining Metabolic Sensor Function

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347

(Pro)renin Receptor Promotes Development of Age-related Skeletal Muscle Atrophy via Activation of Wnt/beta-catenin and YAP Signaling Pathways

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348

Homeobox A4 Suppresses Vascular Smooth Muscle Cell Phenotypic Switching as a Novel Regulator of YAP/TEAD Transcriptional Activity

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349

Beclin1 as a Critical Regulator of the Endosomal Degradation Pathway

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M. Lampert: None.

350

Bcl-xL-Ser14 Phosphorylation is Critical for Compensatory Cardiac Hypertrophy

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351

Suppression of Store Operated Ca^{2+} Entry Components, dStim and dOrai, Results in Dilated Cardiomyopathy

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352

Release of 12,13-diHOME From Brown Adipose Tissue Modulates Inotropy and Lusitropy in Old Mice

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V. Shettigar: None. **E. Abay**: None. **K. Pinckard**: None. **L.A. Baer**: None. **K.I. Stanford**: 2. Research Grant; Significant; NIH and AHA.

353

Distinct cGMP Compartmentalization by Membrane Guanylate Cyclases

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354

Golgi Localized β_1 -adrenergic Receptors Stimulate Golgi PI4P Hydrolysis by PLC ϵ to Regulate Cardiac Hypertrophy

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360

PKA is Needed for Acute Adaptation for Cardiac Stress

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361

Deacetylation of Lc3 Drives Autophagy and Proteome Remodeling in Skeletal Muscle During Oncometabolic Stress

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362

Live Tracking Mouse Model for Endogenous Exosomes from Heart

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363

Systems Network Genomic Analysis Reveals the Role Of MURC/ Cavin-4 in Cardiac Ischemia/reperfusion Injury

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364

Klotho Gene Deficiency Causes Heart Failure via Disruption of Phosphate Metabolism

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365

Reducing Lumen Disorder in Cerebral Arteriovenous Malformation

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368

Disease and Phenotype-relevant Genetic Variants Identified From Histone Acetylomes in Human Hearts

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C. Anene Nzelu: None. **W. Tan**: None. **E. Wong**: None. **M. Lee**: None. **M. Autio**: None. **S. Tan**: None. **P. Bangfen**: None. **M. Morley**: None. **K. Margulies**: None. **T. Cappola**: None. **M. Loh**: None. **J. Chambers**: None. **S. Prabhakar**: None. **R. Foo**: None.

369

Epigenetic Regulation of Cardiomyocyte Proliferation and Regeneration by Swi/snf Complex Subunit Arid1a

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370

A Novel Algorithm for the Collective Integration of Single Cell Rna-seq During Embryogenesis

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W. Gong: None. **B.N. Singh**: None. **S. Das**: None. **M.G. Garry**: None. **D.J. Garry**: None.

371

Chromatin Remodeling Mechanisms by Bromodomain PHD Finger

Transcription Factor in Cardiac Hypertrophy and Heart Failure
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372

CRISPR-based Gene Activation for Transcriptional Reprograming of Mammalian Cardiomyocytes

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373

Regulation of Hypoxia by Chromatin Reader Protein Kinase C Binding Protein 1 (PRKCBP1)

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374

Etv2 Transcriptionally Regulates Yes1 and Promotes Cell Proliferation During Embryogenesis

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375

Acetyl-CoA Production by Specific Metabolites Promotes Cardiac Repair After Myocardial Infarction via Mediating Histone Acetylation
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377

KLF15-TCF7L2-dependent Cardiac Transcriptional Reprogramming Induces Cardiomyocyte and Vascular Cell Remodeling in the Mammalian Heart
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400

Enhanced Neovascularization by ETV2 via Angiogenesis in Myocardial Infarction Models
Seong-Ho Bae, Sangho Lee, Sangsung Kim, Young-sup Yoon, Emory Univ, Atlanta, GA
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401

Polyploidy Increases in Murine Cardiomyocytes Following Myocardial Infarction
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402

Adiponectin Receptor 3 is Associated With Endothelial Nitric Oxide Synthase Dysfunction and Predicts Insulin Resistance in South Asians
Mark Chandy, Nazish Sayed, Edward Lau, Chun Liu, Tzu-Tang Wei, Ian Y-L Chen, Dilip Thomas, June Rhee, Brad Oh, Leila Pepic, Stanford Univ, Palo Alto, CA; Mansoor Husain, Univ of Toronto, Toronto, ON, Canada; Thomas Quertermous, Shriram Nallamshetty, Joseph Wu, Stanford Univ, Palo Alto, CA
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403

CX3CR1⁺ Multipotent Progenitors Generate Cardiovascular Lineage Cells Under Cardiac Microenvironments
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404

Deterministic Paracrine Repair of Injured Myocardium using Microfluidic Cocooning of Heart Explant-Derived Cells
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405

Functional Maturation of Human iPSC-Derived Cardiomyocytes by Prolonged 3D Culture in Engineered Cardiac Tissue Constructs
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406

Plasminogen Regulates Mesenchymal Stem Cell-mediated Tissue Repair After Ischemia Through Cry61
Hao Duan, Zhengqiang He, Alan Mitteer, Hyun-Jun Kim, Eujing Yeo, Hongyu Han, Ling Qin, Yi Fan, **Yanqing A Gong**, Univ of Pennsylvania, Philadelphia, PA
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407

Modeling Atrial Fibrillation in a Dish Using Atrial iPSC Derived Cardiomyocytes
Liang HONG, Meihong Zhang, Seock-Won Youn, Erin Lambers, Arvind Sridhar, Ambili Menon, Brandon Chalazan, Univ of Illinois at Chicago, Chicago, IL; Joseph C. Wu, Stanford Univ Sch of Med, Stanford, CA; Jalees Rehman, Dawood Darbar, Univ of Illinois at Chicago, Chicago, IL
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408

Mir148a Family Regulates Cardiac Differentiation of Human Embryonic Stem Cells by Inhibiting The Dll1-mediated Notch Signaling Pathway
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409

Regulation of Cardiomyocyte Maturation by an RNA Splicing Regulator Rbfox1
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410

A Novel Combination Therapy Using First Trimester Human Umbilical Cord-Derived Mesenchymal Stromal Cells and Endothelial Progenitor Cells Significantly Improves Angiogenesis and Cardiac Recovery Following Myocardial Infarction

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411

Surface Engineering Strategies to Study Diseases of Heart and Skeletal Muscle

Aditi Jain, Venkatraman Ravi, Jafar Hasan, Manisha Behera, Kaushik Chatterjee, Nagalingam Ravi Sundaresan, Indian Inst of Science, Bangalore, India

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412

Wnt / β -catenin Inhibitor Differentiates Human Mesenchymal Stem Cells into Myogenic Lineage *in vitro* and Improved Cardiac Function *in vivo* in Rat Model of Myocardial Infarction

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413

Adipose-derived Stem Cells With Thymosin Beta 4 Enhanced Neovascularization in Mouse Ischemic Hind Limb Model

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414

Postnatal Cardiac Tissue Harbors Progenitor Cells With Unique Metabolic Profile

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415

Electrical Stimulation of Pediatric Cardiac-derived c-kit⁺ Progenitor Cells Improves Retention and Cardiac Function in Right Ventricular Heart Failure

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416

Approach of mRNA Delivery by Using Nanoparticles to Recover Endocardial Notch Signaling

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V.L. Messerschmidt: 2. Research Grant; Significant; NIH T32. **A. Kuriakose:** None. **K. Nguyen:** None. **J. Lee:** None.

417

A 3D iPSC-derived Scaffold-Assisted Microfluidic Model of Ventricular Ejection

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418

Ready-made Microvessels Robustly Integrate Into the Infarcted Coronary Vasculature Promoting Graft Perfusion, Enhancing Cardiac Remuscularization and Function

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419

Beneficial Effects of scaRNA Modulated Human iPSC-derived Cardiomyocytes Exposed Under Hypoxic Conditions
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420

S-nitrosylation Promotes Cell Cycle, Cell Viability and Proliferation by Activating the Snail/Slug Pathway in miPSC-derived CM

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421

Organ-on-chip Model for Investigating Autonomic Innervation of the Cardiac Microenvironment

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422

Placental Cdx2 Cells Regenerate Injured Myocardium

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423

Cardiomyocyte Maturation and Multinucleation in Postnatal Swine
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424

Postnatal Resetting of Cardiomyocytes Toward Ground State as a Principal Step in Heart Maturation
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425

Role of MLF1 in Cardiomyocyte Cell Cycle Regulation
Feng Xiao, Jainy Savla, Alisson Campos Cardoso, Ana Macedo Periera, Shalini Muralidhar, Diana Canseco, Hesham A Sadek, UT Southwestern Medical Ctr, Dallas, TX
F. Xiao: None. **J. Savla:** None. **A.C. Cardoso:** None. **A.M. Periera:** None. **S. Muralidhar:** None. **D. Canseco:** None. **H.A. Sadek:** None.

426

Single Cell RNA-seq Analysis of Dynamic LIF Control of Adipose Derived Stem Cells Transition to Cardiomyocytes
Jiayi Yao, **Jiayi Yao**, UCLA, Los Angeles, CA
J. Yao: None. **J. Yao:** None.

430

Impaired Autophagic Off-rate Causes Cardiac Aging in Progeria Mouse Model
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Y.K. Bando: None. **T. Kamihara:** None. **T. Murohara:** None.

431

The Capillaries in Ischemic Border Zone: Origin And Role in Myocardial Infarction and Heart Failure
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432

Rapamycin Can Ameliorate Antiretroviral Drug Mediated Cardiotoxicity
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S. Alapati: None. **M.K. Gupta:** None.

433

Hydrogen Sulfide Protects the Heart Against Homocysteine-Induced Remodeling by Regulating Autophagy and Pyroptosis
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434

Acidifying Nanoparticle Upregulates Autophagy and Enhances Cardiomyocyte Survival after Chemotherapy
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435

SUMOylation Site in MCL-1 Regulates its Anti-Apoptotic Activity
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L.J. Leon: None. **A.G. Moyzis:** None. **A.B. Gustafsson:** None.

436

Role of Beclin1 in Regulating Parkin-mediated Mitophagy
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E.R. Moreno: None. **M.A. Lampert:** None. **R.H. Najor:** None. **Å.B. Gustafsson:** None.

437

PRMT5-induced Arginine Methylation Mediates Energy Stress-induced Autophagy in the Heart
Risa Mukai, Toshiro Saito, Peiyong Zhai, Junichi Sadoshima, Dept of Cell Biology and Molecular Med, Rutgers New Jersey Medical Sch, Newark, NJ
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438

GRAF1 is a Novel Mediator of Parkin-dependent Mitophagy
Qiang Zhu, Matthew Combs, Xue Bai, Christopher Mack, Joan M Taylor, Univ of North Carolina at Chapel Hill, Chapel Hill, NC
Q. Zhu: None. **M. Combs:** None. **X. Bai:** None. **C. Mack:** None. **J.M. Taylor:** None.

441

The Role of Brown Adipose Tissue in Aging-Induced Cardiovascular Impairments
Eaman Abay, Megan M Mansour, Carmem Peres Valgas Da Silva, Lisa A Baer, Vikram Shettigar, Kristin I Stanford, Mark T Ziolo, Ohio State Univ, Columbus, OH
E. Abay: None. **M.M. Mansour:** None. **C. Peres Valgas Da Silva:** None. **L.A. Baer:** None. **V. Shettigar:** None. **K.I. Stanford:** 2. Research Grant; Significant; NIH and AHA. **M.T. Ziolo:** 2. Research Grant; Significant; NIH and AHA.

442

Caregiver Burden, Stress, Depression, and Quality of Life in Family Caregivers of Patients with Heart Failure
Jeong-ah Ahn, Ajou Univ, Suwon, Korea, Republic of
J. Ahn: 2. Research Grant; Significant; Research Fund of Ajou University School of Medicine.

443

Long-Term Testosterone Deficiency Modifies Frailty and Cardiac Structure and Function in Aging Male Mice
Shubham Banga, Stefan Heinze-Milne, Susan E Howlett, Dalhousie Univ, Halifax, NS, Canada
S. Banga: None. **S. Heinze-Milne:** None. **S.E. Howlett:** None.

444

The Phase of Third Harmonic of Radial Pulse Predicts Cardiac Risk in Asymptomatic Patients With Type 2 Diabetes

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445

Monitoring the Hemodynamic Status During Three Trimesters of Pregnancy and Non-pregnancy Periods

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446

The Impact of the Menstrual Cycle on the Cardiovascular System

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447

Development of CD47-nanomedicine as Novel Treatment for Specific Mitigation of Thrombospondin 1-Induced Vascular Dysfunction

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448

Predicting Blood Pressure Response to Fluid Bolus Therapy Using Neural Networks with Clinical Interpretability

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449

Transplantation Alters Function and Clonality of Cytomegalovirus-Responsive T Cells

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L.E. Higdon: None. **S. Schaffert:** None. **N. Saligrama:** None. **M.M. Davis:** None. **P. Khatri:** None. **J.S. Maltzman:** None.

450

Adipose Tissue Browning Induced by Natriuretic Peptide Exerts Thermogenic Actions and Improves Insulin Resistance in an in vivo Model of Diet-Induced Obese Mice

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H. Kimura: None. **T. Nagoshi:** None. **A. Yoshii:** None. **Y. Tanaka:** None. **Y. Oi:** None. **M. Yoshimura:** None.

451

Pde1 Promotes Development of Pulmonary Arterial Hypertension and Could Be a Novel Treatment Target

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M. Kimura: None. **D. Kusumoto:** None. **J. Komuro:** None. **T. Katsuki:** None. **S. Ito:** None. **H. Hashimoto:** None. **S. Yuasa:** None. **K. Fukuda:** None.

452

A Unique Acylcarnitine Profile is Independently Associated with Diabetic Heart Failure and Associates with Adverse Clinical Outcomes: Insights from the FIGHT Trial

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J.B. Lerman: None. **S.N. Giamberardino:** None. **S.E. McNulty:** None. **W.E. Kraus:** None. **C.L. Holley:** None. **A.F. Hernandez:** 2. Research Grant; Significant; AstraZeneca, Merck, Novartis. **S.H. Shah:** None. **R.W. McGarrah:** None.

453

Phenotyping by ECG Dynamics During Sleep Predicts Cardiovascular Disease Risk Factors in a Multicenter Study of Asymptomatic Middle-aged Community Adults

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T.K. Lin: None. **D. Wendelken:** None. **B. O'Rourke:** None. **S.R. Jones:** None. **N.M. Punjabi:** None. **D. DeMazumder:** None.

454

Plasticizer Interaction With the Heart: Chemicals Used in Plastic Medical Devices Can Interfere With Cardiac Electrophysiology

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455

A Novel XBP1s-FoxO1 Axis Regulates Lipid Metabolism and Cardiac Performance in Heart Failure with Preserved Ejection Fraction

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456

Fundamental New Clinical Insight From Excitation-contraction Coupling Studies of the Cardiovascular System via Integrated ECG And Photoplethysmography (PPG) Analyses During Sleep
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D.R. Wendelken: None. **N. Sanagala**: 2. Research Grant; Significant; AHA 18AMTG34280046. **G.A. Conway**: None. **S.R. Jones**: None. **D. DeMazumder**: 2. Research Grant; Significant; NIH NHLBI 1K99HL130662-01, NIH NHLBI 4R00HK130662, NIH NHLBI 1UH54HL119810, AHA 17UNPG33860002, AHA 18IFUNP33990024, AHA 18AMTG34280046.

457

The Effect of Dietary Patterns on Cardiometabolic Risks in Healthy Asian Adults

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460

Sex-Related Changes in Physiological Cardiac Hypertrophy in Beta Arrestin-2 KO mice

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461

Sodium Influx Modulates the Modality of Cardiac Relaxation

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462

High Speed Imaging of Single Cardiomyocyte Action Potentials Using a Far-red Genetically Encoded Voltage Sensor

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465

High Circulating Levels of 8-OHdG are an Independent Predictor of Subsequent MACE

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O. Galenko: None. **S.A. Kergaye**: None. **S. Knight**: None. **J.B. Muhlestein**: None. **J.L. Anderson**: None. **K.U. Knowlton**: None. **J.F. Carlquist**: None.

466

Myopathy Causing Bag3^{P209L} Protein Leads to Restrictive Cardiomyopathy Caused by Aggregate Formation and Sarcomere Disruption in Cardiomyocytes

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467

Identification of Novel Pathogenic Mutations in Non-Canonical RNA Splice Sites in Congenital Heart Disease

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M. Jang: None. **A.C. Tai**: None. **P.N. Patel**: None. **K. Ito**: None. **J. Gorham**: None. **A.C. Pereira**: None. **D.M. McKean**: None. **C.E. Seidman**: None. **J.G. Seidman**: None.

468

Sirt1 Ameliorates High Fat Diet-induced Diastolic Heart Failure
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S. Oka: None. **P. Zhai**: None. **J. Sadoshima**: None.

469

Genomic Context Predicts Dilated but Not Hypertrophic Cardiomyopathy

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470

Reactivation of Fetal MicroRNAs Contribute to Dilated Cardiomyopathy

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S. Shrestha: None. **X. Shen**: None. **R. Liang**: None. **F. Wang**: None. **B.K. McConnell**: None. **Y. Liu**: None.

471

Exploring Haploinsufficiency Drivers in a Set of cMyBP-C Missense Mutations Causing Hypertrophic Cardiomyopathy

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472

Smyd1 Variants Regulate Distinct Areas of Chromatin in the Cardiomyocyte

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M. Szulik: None. **M. Miller**: None. **C. Conley**: None. **T. Parnell**: None. **S. Franklin**: None.

476

Pharmacogenetics and Drug Discovery for Anthracycline-Induced Cardiotoxicity Enabled by Sinoatrial Node-like Cells Derived from Human Pluripotent Stem Cells

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477

Role of Telomere Dysfunction in Duchenne Muscular Dystrophy Cardiomyopathy

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A. Eguchi: None. **A.C. Chang**: None. **G. Pardon**: None. **B.L. Pruitt**: None. **D. Bernstein**: None. **H.M. Blau**: None.

478

Identifying Signaling Pathways Regulated by Trophoblasts in Placental Vascular Development Using 3D Tissue Models

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O. Kashpur: None. **M.C. Wallingford**: None.

479

Cardiomyopathy Phenotypes Observed in Human Engineered Heart Tissue Depend on Functional Maturation

Lorenzo R Sewanan, Shi Shen, Ronald Ng, Xia Li, Stuart G Campbell, Yale Univ, New Haven, CT

L.R. Sewanan: None. **S. Shen**: None. **R. Ng**: None. **X. Li**: None. **S.G. Campbell**: None.

480

A Novel Role for Telomerase in Calcific Aortic Valve Disease

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L. Hortells: None. **C. Boufford**: None. **C. Regan**: None. **C. Chu**: None. **W.J. Moorhead**: None. **G. Doyon**: None. **D. Bruemmer**: None. **C. St Hilaire**: None.

481

Investigation into the Genetic Cause of Congenital Dilated Cardiomyopathy Using Human Induced Pluripotent Stem Cells

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482

Modeling PKP2 Mutation Associated Arrhythmogenic Cardiomyopathy With CRISPR-edited iPSC-derived Cardiomyocytes in Engineered Cardiac Tissues

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485

STING(ing) the Heart: How DNA Damage and Inflammation Orchestrate Cardiac Remodeling and Heart Failure

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486

Deficiency of Myocardial miR-17-92 Cluster Exacerbates Ischemic Injury in Diabetic Mice

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A. Samidurai: None. **S.K. Roh**: None. **R.C. Kukreja**: None. **F.N. Salloum**: None. **A. Das**: None.

487

Immune Response Factors in Patients with Diabetes Mellitus and Acute Coronary Syndrome

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488

Overexpression of the Prostaglandin E2 EP3 Receptor Reduces Cardiac Function in an Angiotensin II Model of Hypertension

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T.D. Bryson: None. **J. Xu**: None. **D. Taube**: None. **E. Peterson**: None. **P. Harding**: None.

489

CC Chemokine Receptor 5 Protects the Heart from Inflammation in Pressure Overload-induced Cardiac Dysfunction

Masato Ishizuka, Haruhiro Toko, Mutsuo Harada, Jiayi Guo, Satoshi Bujo, Haruka Yanagisawa-Murakami, Issei Komuro, The Univ of Tokyo, Tokyo, Japan

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Guo: None. **S. Bujo:** None. **H. Yanagisawa-Murakami:** None. **I.**

Komuro: None.

490

Sex-Specific Inflammatory Gene Expression in the Hypertrophied and Failing Human Heart

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Gaignebet: None.

491

Small Gtpase Rho Regulates Inflammatory Response in Myocardial Infarction

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492

Adipolin/C1q/Tnf-related Protein 12 reduces Neointimal Formation And Atherosclerotic Lesion Development By Modulation Of Macrophage Inflammatory Response And Endothelial Cell Function

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493

Multidirectional Analysis of Anti-atherosclerotic Effect Caused by Korean Radish in Apo E-/- Mice Model

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494

Role of Slug / PIP Axis in Pulmonary Hypertension Secondary to Pulmonary Fibrosis

Gregoire Ruffenach, Mylene Vaillancourt, Jason Hong, Nancy Cao, Christine Cunningham, Rajan Sagggar, Srinivasa Reddy, Soban Umar, Gregory Fishbein, Mansoureh Eghbali, Univ of California, Los Angeles, CA

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Cao: None. **C. Cunningham:** None. **R. Sagggar:** None. **S.**

Reddy: None. **S. Umar:** None. **G. Fishbein:** None. **M.**

Eghbali: None.

495

Determinants of Atrial Fibrillation Mechanisms Using Metabolomic Profiling

Padmini Sirish, Jun Yang, Hannah Ledford, Carol Nader, Svetlana Ganaga, J Nilas Young, Bruce D Hammock, Nipavan Chiamvimonvat, UNIVERSITY OF CALIFORNIA DAVIS, Davis, CA

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Nader: None. **S. Ganaga:** None. **J. Young:** None. **B.D.**

Hammock: None. **N. Chiamvimonvat:** None.

496

Inhibition of the Rna Binding Protein Hnr Protects Against Cardiac Ischemia/reperfusion Injury by Reducing Inflammatory Gene Expression

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Green: None. **M.L. Nieman:** None. **J. Lorenz:** None. **M.**

Tranter: None.

497

Studying Cardiovascular Effects of Marijuana on Healthy Individuals Using Human Derived Induced Pluripotent Stem Cells

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Khanamiri: None. **M. Nishiga:** None. **F. Seidl:** None. **N.**

Sayed: None. **C. Liu:** None. **J. Rhee:** None. **D. Obal:** None. **T.**

Chour: None. **J.C. Wu:** None.

498

The Effects of Low-carbohydrate High-fat Diet on Vascular Remodeling

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Harada: None. **J. Guo:** None. **S. Bujo:** None. **M. Ishizuka:** None. **I.**

Komuro: None.

Molecular and Systemic Mechanism of Nonlinear Dynamic Patterns of Ventricular Repolarization and Spontaneous Arrhythmic Sudden Death in Non-ischemic Heart Failure

Daiana C. O. Vieira, Jeffrey S Crocker, Krina Desai, Neha Reddy Sanagala, Daniel R Wendelken, Kenneth G Parks, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH; Ting Liu, Brian O'Rourke, Swati Dey, Div of Cardiology, Johns Hopkins Univ Sch of Med, Baltimore, MD; Deeptankar DeMazumder, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH

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499

Molecular and Systemic Mechanism of Nonlinear Dynamic Patterns of Ventricular Repolarization and Spontaneous Arrhythmic Sudden Death in Non-ischemic Heart Failure

Daiana C. O. Vieira, Jeffrey S Crocker, Krina Desai, Neha Reddy Sanagala, Daniel R Wendelken, Kenneth G Parks, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH; Ting Liu, Brian O'Rourke, Swati Dey, Div of Cardiology, Johns Hopkins Univ Sch of Med, Baltimore, MD; Deeptankar DeMazumder, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH

D.C. Vieira: None. **J.S. Crocker:** None. **K. Desai:** None. **N.**

Sanagala: 2. Research Grant; Significant; 18AMTG34280046. **D.R.**

Wendelken: None. **K.G. Parks:** None. **T. Liu:** None. **B.**

O'Rourke: None. **S. Dey:** None. **D. DeMazumder:** 2.

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500

Progression of Chronic Ischemia-Mediated Arrhythmogenesis in a Rat Model of Heart Failure

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501

Selective *in vivo* Modulation of Vagal-Muscarinic Signaling Prevents Sudden Cardiac Death in a Pressure Overload Model of Heart Failure

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502

Reversible Cardiac Action Potential Recordings to Track Cellular Electrophysiology Over Days

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503

Nicotinamide Riboside Modulates Late Sodium Current and Cardiac Repolarization

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504

AAV9-Mediated Overexpression of TRPM4 Increases the Incidence of Ventricular Arrhythmias in Living Mice

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505

Adenovirus Targets Connexin43 Gap Junction Expression and Function During Infection

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506

Trpm4 Contributes to Ca²⁺-dependent Triggered Arrhythmias in Pathological Conditions

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507

Activation of Transient Receptor Potential Canonical Channel Currents in Iron-Overloaded Cardiac Myocytes

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Wongjaikam: None. **N. Fefelova**: None. **J. Gwathmey**: None. **S. Chattipakorn**: None. **N. Chattipakorn**: None. **L. Xie**: None.

510

Spatial Transcriptomics Unveils ZBTB11 as a Regulator of Cardiomyocyte Degeneration in Arrhythmogenic Cardiomyopathy

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511

Regulation of p53 Protein Levels Drives Activation of Cardiac Fibroblasts in Response to Pressure Overload

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Dirkx: None. **B. Kang**: None. **C.S. Moravec**: None. **E.M. Small**: None.

512

Extracellular Matrix Components Isolated from Diabetic Mice Alters Cardiac Fibroblast Function Through the AGE/RAGE Signaling Cascade

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513

Exosomes Derived from Podoplanin Positive Cells Induce Fibrosis and Inflammation in Healthy Mouse Heart

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Truongcao: None. **G. Huang**: None. **V. Mallareddy**: None. **C. Benedict**: None. **R. Kishore**: None.

514

Proteomic Characterization of Extracellular Matrix Regulation in Human Aortic Valve Development and Disease

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515

WNT the Right Ventricle's Had Enough

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516

GRK5 Regulates Cardiac Fibroblast Differentiation and Fibrosis

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517

Glutaminolysis is Required to Initiate Myofibroblast Differentiation and Persistence During Stress

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518

Pharmacological Inhibition of Human Antigen R (HuR) Blunts fibroblast Activation and Cardiac Fibrosis

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519

Desmin Protects Cardiomyocyte Nuclei From Microtubule-dependent Collapse

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520

Cavin-2/SDPR in Cardiac Fibroblasts Modulates TGF- β /Smad Signaling and Promotes Pressure Overload-induced Fibrosis

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521

Cardiac Fibroblasts are Activated During Postnatal Extracellular Matrix Remodeling

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522

IL-10 Knockout Bone Marrow Fibroblast Progenitor Cells-derived Exosomes Activate Cardiac Fibroblast and Exaggerate Pressure Overload-induced Fibrosis in Mice Heart

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523

Myocardial Hypertrophy and Fibrosis Regulated by Nogo-ROCK-norepinephrine Transporter Signaling Pathway in Spontaneously Hypertensive Rats

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524

Activated Fms-like Tyrosine Kinase 3 Receptor Prevents Ventricular Remodeling Induced by Ang II Through the Attenuation of Autophagy

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525

In vitro Reverse Remodeling After Mechanical Unloading with Engineered Heart Tissue

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526

A Transcriptomic Analysis of Cardiac Myofibroblasts Reveals Novel Anti-fibrotic and Immunomodulatory Genes Modulated by CDC-Derived Exosomes

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E.J. Sinibaldi: None. **F.J. Sim**: None. **J.K. Lang**: None.

527

Cardiac Fibroblast Ablation in Chronic Fibrosis

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528

Restricted Proteasome Heterogeneity Promotes Premature Heart Failure and Deterioration of Associated Protein Levels Upon Continuous β -Adrenergic Stimulation

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529

Circulating Pro Fibrotic Protein Promotes Fibrosis in Liver and Heart
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530

Cardiac Fibroblast GSK-3 α Contributes to Ventricular Remodeling and Dysfunction of the Failing Heart

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531

Urolithin a Suppress Cardiac Fibrosis via Autophagy Pathway in the Diabetic Cardiomyopathy

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539

Methamphetamine-induced Cardiomyopathy Associated With Mitochondrial Dysfunction, Cardiac Fibrosis and Hypertrophy
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540

Sigma 1 Receptor-dependent Regulation of Mitochondrial Respiration and Function in Cardiomyocytes

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541

Uncovering the Physiological Role of Mitochondrial Respiratory Supercomplexes in the Heart

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543

The Metabolites of Human Cardiac Precursors Enhanced Cardiomyogenic Differentiation of hiPSC

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544

microRNA181c Activates Mitochondrial Calcium Uptake by Regulating Micu1 in the Heart

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545

A Multifunctional Genetic Probe for Investigating Mitochondrial Calcium Dynamics in Cardiac Cells

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546

Exploring MCUB Function in the Heart and Its Role in Ischemia Reperfusion Injury

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547

Metabolomic and Transcriptomic Profiling of Rat Offspring Exposed to Gestational Diabetes Reveals Altered Cardiac Gene Expression and Metabolism

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548

Cardiomyocyte-KLF5 Expression is Increased by FOXO1 and Accounts for Cardiomyopathy in Type-1 Diabetes

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549

Cardiac Aging is Associated with Impaired Mitophagy and Formation of Megamitochondria

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560

Differences in GCN5L1 Expression Between Male and Female Hearts Are Associated With Increased Mitochondrial Protein Acetylation

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561

Bone Morphogenetic Protein-3b Deficiency Induces Metabolic Syndrome and Modulates Adipogenesis

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562

Comprehensive Arteriovenous Metabolomics in the Human Heart

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563

Cardiac TIGAR Reduces Myocardial Energetics and Cardiac Function in the Pressure Overload Heart Failure Model

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564

Investigating the Roles of Cyclin C in Heart Disease

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565

Response of the Ischemic Myocardium to Adrenergic Stimulation as Detected by Hyperpolarized [^{13}C]pyruvate

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566

Branched Chain Ketoacid Dehydrogenase Kinase Inhibition Alters Substrate Utilization and Gene Expression in Myocytes

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567

Fgf21 as a Biomarker for Metabolic Stress in Heart Failure

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568

Effects of Burn-induced Cardiac Released Factors on Cardiomyocyte and Profiles of Differentially Expressed Cardiac Mitochondrial Proteins Effects of Burn-induced Cardiac Released Factors on Cardiomyocyte and Profiles of Differentially Expressed Cardiac Mitochondrial Proteins

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569

Functional Benefits of Muscle PGC-1alpha in Aged Animals

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570

Mechanism of Mitochondrial Calcium Uniporter Regulation

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575

Loss of Function Variant in CYB5R3 Associates with Exacerbated Cardiac Hypertrophy in Mice

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Wood: None. **P.H. Thideau:** None. **B.A. Kaufman:** None. **D.M.**

McNamara: None. **A.C. Straub:** None.

576

Phosphodiesterase 2 in Cardiac Arrhythmias and Heart Failure

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577

Matricryptin p1158/59 Improves Cardiac Function Post-myocardial Infarction by Reducing Adverse Remodeling

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G.A. Grilo: None. **P.R. Shaver:** None. **R.P. Iyer:** None. **L.E. de Castro Brás:** None.

578

Brg1 Protects Cardiomyocytes Against Oxidative Damage Through Activation of the Nrf2 Signaling Pathway in Acute Myocardial Infarction

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579

Involvement of the Alpha 1A-Adrenergic Receptor in the Cardiac Adaptation to Physiological Stress

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Kesteven: None. **J. Wu:** None. **S.E. Iismaa:** None. **M.**

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580

Cardiovascular Risks of Oxidative DNA Damage

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581

Hyperglycemia Acutely Increases Cytosolic Reactive Oxygen Species (ROS) via O-linked GlcNAcylation Activation of CaMKII in Mouse Ventricular Myocytes

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582

Obg-like Atpase 1 (OLA1) Regulates Cardiomyocyte Hypertrophic Response via Gsk3β Signaling

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Quach: None. **D. Annamalai:** None. **P. Krishnamurthy:** None.

583

Single Cell Analysis of Monocytes and Macrophages in the Infarcted Heart

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Fu: None. **A. Aguirre:** None. **R. Weissleder:** None. **K. King:** None.

584

DJ-1 Confers Protection Against Ischemic Injury by Preserving the Activity of Thioredoxin

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585

Role of Splice Variant Clic5B in Cardiac Mitochondrial Localization and Function

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586

VA-ECMO Increases Urinary Levels of the Biomarker Kidney Injury Marker-1 (KIM-1) in a Preclinical Model of Acute Myocardial Infarction

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587

Rutin and Quercetagenin Improve Cardiac Regeneration Potential of Aging Rat Bone Marrow Mesenchymal Stem Cells in vivo

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588

Beta-blockers Reverse Beta Adrenergic Receptors Desensitization Under Hypoxia

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589

Left Ventricular Unloading and Delayed Coronary Reperfusion Protects the Structural and Functional Integrity of Mitochondrial Complex 1 in a Preclinical Model of Acute Myocardial Infarction

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590

EphrinA1-Fc Attenuates Dysfunction and Fibrosis in Nonreperfused Myocardium at 4 weeks Post-MI in WT B6 but Not EphA2-R Mutant Mice

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591

Improving Cardiovascular Health Through DNA Repair

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592

Cardioprotection During Ischemia by Induced Coronary Collateral Growth

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600

Anti-Angiogenic Effects of Circulating Exosomes From Patients With Acute Coronary Syndrome: Potential Role of miR-199a and miR-125a

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601

Radiation Therapy Induces Changes in the Endothelial Methyome Affecting Pro-angiogenic Lncrna Expression

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602

Mir-182-5p is a Conserved Downstream Effector of Tbx5 Involved in Heart Development and Arrhythmia in Zebrafish

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603

Differential Proteoform Regulation in Cardiac Aging

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604

Doxorubicin-induced microRNA-377 Alters Cardiomyocyte and Endothelial Cell Function

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605

Identification of Differential Roles of MicroRNA-33a and -33b During Atherosclerosis Progression with Genetically Modified Mice

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606

Stimulation of Cardiomyocyte α - and β -Adrenoceptors Uniquely Regulates Exosome Generation and miRNA Content

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607

Effects of Blocked MicroRNA-221 and 222 in Differentiation of Human Pluripotent Stem Cells Derived Hematopoiesis and Hemogenic Endothelium via c-KIT Upregulation

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608

Long Non Coding RNA Miat Contributes to Cardiac Hypertrophy and Regulates Ribosomal Genes

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612

Automated Analysis of Displacement from Intravital Multiphoton Microscopy in Mouse Ventricle

Nathaniel H Allan-Rahill, David M Small, Michael RE Lamont, Solomon Djakpa, Marvarakumari G Jhala, Yvette Zhu, Nozomi Nishimura, Cornell Univ, Ithaca, NY
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613

Isolating the Pathological Contribution of Detyrosinated Microtubules in Human Myocardial Mechanics

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614

Using Intact Trabeculae to Determine the Effect of Myosin-Modifying Drugs on Work, Power, and Mechanical Control of Relaxation

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615

The Cardiac Myosin Inhibitor, CK-3773274, Reduces Contractility in the R403q Mouse Model of Hypertrophic Cardiomyopathy

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616

Glycogen Synthase Kinase 3 β Localizes to and Modulates Sarcomere Function in Health and Disease

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617

In vivo Titin Oxidation as a Modulator of Sarcomeric Contractility

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618

Overexpression of Rrm2B Elevates dATP and Cardiac Function

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619

Cardiac Function in Electronic Cigarette-Exposed Adolescent Mice

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620

Molecular Mechanisms and Therapeutic Approaches to Myofilament Glycation as a Result of Diabetes

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621

Cardiac Myosin Binding Protein-C Phosphorylation in Ser-273 and Ser-282 is Critical to Maintain Cardiac Function During Aging

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622

Load-Independent Systolic Dysfunction and Altered Z-Disc Protein Phosphorylation in Swine with Stretch-Induced Myocardial Stunning

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625

Mixed Lineage Kinase 3 Regulates Blood Pressure Through Kinase Independent Effects in the Vasculature

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626

Pro-Inflammatory Signaling by Cardiomyocytes Involves Activation of a RhoA Dependent Gene Expression Pathway

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627

Primary Cilia of the Cardiac Neural Crest Orchestrate Critical Aspects of Ventricular Maturation and Postnatal Cardiac Function: A Role for Hedgehog Signaling

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628

Diabetes-Mediated Vascular Calcification is RAGE-Dependent

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630

Txlnb-Deficient Mice Reveal That Ubiquitin-Proteasome-System Dysfunction is Not Sufficient to Impair Cardiac Performance

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631

Complementary Roles for 3-mercaptopyruvate Sulfurtransferase and Cystathionine γ -lyase in Angiogenesis

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632

MTOR-Proteasome Imbalance Upon Deletion of Pras40 Inhibits Cardiac Growth but Results in Cardiac Failure

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633

Semaphorin3e-Plexind1 Signaling is Required for Cardiac Ventricular Compaction

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634

Role of Microglial Calcium Signaling in Ischemic Stroke

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635

β_2 -adrenergic Stimulation Compartmentalizes β_1 Signaling Into Nanoscale Local Domains by Targeting the C-terminus of β_1 -adrenoceptors

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640

Indigo Naturalis, a Promising Herbal Medicine for Ulcerative Colitis, Can Induce Experimental Pulmonary Arterial Hypertension via Aryl Hydrocarbon Pathway

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641

Drosophila Adipogenesis Regulates Cardiac Function

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642

Single-Cell RNA-seq Unveils Unique Transcriptomic Signatures of Organ-Specific Endothelial Cells

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D.T. Paik: None. **L. Tian**: None. **I.M. Williams**: None. **C. Liu**: None. **H. Zhang**: None. **D. Williams**: None. **R. Mishra**: None. **S.M. Wu**: None. **J.C. Wu**: None.

643

Integrated Systems Genetics Analysis of Tmem43 Mouse Model and Murine Genetic Reference Population of Bxd Strains Defines Novel Genetic Modifiers and Pathogenic Mechanisms in Arrhythmogenic Cardiomyopathy

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644

Enhancing Lymphangiogenesis Ameliorates Chronic Heart Failure

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645

CUBIC as an Alternative "Clearing" Method for Creating Hydrogel-based Structure in Organs

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M. Tallam: None. **Q. Yuan**: None. **M. Greer**: None. **M.W. Kay**: None.

646

Myocardial Ischemia/Reperfusion Impairs Adipocyte Endocrine Function via Exosome-Mediated Endoplasmic Reticulum Dysfunction

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649

Identification and Characterization of a *Titin* Enhancer using CRISPR/Cas9 Genome Editing and hiPSC-Derived Cardiomyocytes

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650

Dose-response Effect of Hyperglycemia in Maternal Diabetes Mediated Congenital Heart Defects

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C. Mansfield: None. **S. Manivannan**: None. **E.M. Cameron**: None. **V. Garg**: None. **M. Basu**: None.

651

Single-nucleus Transcriptome Analysis of Patients' Heart Tissue Reveals Disease-specific Transcriptional Signatures in Heart Failure

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652

Increased $G\alpha_s$ Expression Plays a Pivotal Role in the Progression of Heart Failure by Impairing Ca^{2+} Handling

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653

The Long Noncoding RNA Landscape of the High Altitude Induced Thromboembolic Disorder: Role of Endogenous miRNA Sponge

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655

Protein Arginine Methyltransferase 6 Controls Cardiac Hypertrophy by Differential Arginine and Lysine Methylation of Histone H3
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656

Construction and Application of an Epigenetic Atlas of the Human Heart

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657

Long Noncoding RNA Ppp1r1b Regulates Myogenic Differentiation Through Modulating Histone 3 Methylation

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X. Kang: None. **Y. Zhao**: None. **J. Wu**: None. **S.F. Nelson**: None. **M. Tuma**: None.

658

RNF20/40 Regulates Cardiomyocyte Maturation

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700

Recellularization of Acellular Xenogenic Scaffold With Autologous Human Mesenchymal Stem Cells Rescues the Xenoreactive Immune Response

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701

Mesenchymal Stem Cells Overexpressing FGF21 Improve Functional Recovery After Traumatic Brain Injury

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702

Fusion of Cardiac Progenitor Cell and Cardiomyocyte Induces Cardiomyocyte Division

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703

Transplantation of Modified Mesenchymal Stem Cells (MSCs) Helps Reduce Systemic Inflammation in Diet-Induced Obese Mouse Model

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704

Profiling Differential Response to Myocardial Infarction by Single Cell Analysis of the Cardiac Interstitium

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E. Forte: None.

705

Synergistic Activation of the Cardiac Enhancer Landscape During Cardiac Reprogramming

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706

Changes in Translational Efficacy During Zebrafish Heart Regeneration

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707

Cortical-bone Stem Cell Therapy Alters the Inflammatory Response After Myocardial Infarction

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708

Platelet Derived Growth Factor-Beta Communication Axis is Critical for Mediating Pericyte-Endothelial Cell Interactions and Angiogenic Support in Combination Therapy of Human Umbilical Cord Perivascular Cells and Endothelial Progenitor Cells

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709

DNA Damage-free iPS-cardiomyocyte Reduces Cardiac Fibrosis Through Downmodulation of Exosomal miR-101

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710

Quality of Life Assessment in Yucatan Mini Swine after Myocardial Infarction

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711

Therapeutic Effects of Engineered Human Pluripotent Stem Cell-derived Lymphatic Endothelial Cells on Experimental Lymphedema

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712

mRNA Stability in Pluripotency and Differentiation of Induced Pluripotent Stem Cells

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713

Engineering Complex Tissue Mechanical Environment for Cardiac Microtissues Derived from Human Induced Pluripotent Stem Cells

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714

Mapping the Transcriptional Dynamics of Pluripotent Stem Cell-derived Endothelial Cell Differentiation by Single Cell RNA Sequencing

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715

A Metabolic Mechanism for Cardiomyocyte Cell Cycle Arrest

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716

2D and 3D Assessment of Angiogenesis in Cardiac Engineered Tissues Implanted on Infarcted Rat Hearts

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717

CGMP Expanded First Trimester Human Umbilical Cord Perivascular Cells (FTM HUCPVC) Induce Significant Angiogenesis, Myocardial Regeneration and Sustained Functional Recovery Exceeding Older MSC Sources in the Rat Myocardial Infarction (MI) Model

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S. Peter: None. **A. Johnston:** None. **F. Iqbal:** None. **B. Hoseini:** None. **A. Lucato:** None. **P. Mander:** None. **J. Wu:** None. **R. Li:** None. **C. Librach:** None.

718

Reparative Macrophage Transplantation for Myocardial Repair: A Refinement of Bone Marrow Mononuclear Cell-Based Therapy

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719

CRISPR/Cas9-Based Knockout of the *TLR4* gene Enhances Secretion of Extracellular Vesicles with Anti-Inflammatory Properties from Human Cardiac Mesenchymal Stromal Cells

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720

Prenatal Exposure of Cigarette Smoke Impacts Cardiac Regeneration
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721

Human Neonatal Cardiac Progenitor Cells Derived Exosomes Induce Cardiomyocytes Proliferation
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722

Unveiling Ccbe1 Role as a Modulator of Cardiomyocyte Differentiation
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723

Cortical Bone Derived Stem Cells Modulates T Cell Response After Myocardial Injury
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724

Neonatal Heart Regeneration Preserves Native Ventricular Biomechanical Properties After Myocardial Infarction
Hanjay Wang, Ross Bennett-Kennett, Michael J Paulsen, Camille E Hironaka, Akshara D Thakore, Justin M Farry, Anahita Eskandari, Haley J Lucian, Matthew A Wu, Annabel Imbrie-Moore, Amanda N Steele, Lyndsay M Stapleton, Reinhold H Dauskardt, Y. Joseph Woo, Stanford Univ, Stanford, CA
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725

A Transcriptional Basis for Neonatal Heart Regeneration at Single Cell Resolution
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Z. Wang: None. **M. Cui:** None. **A. Shah:** None. **W. Tan:** None. **N. Liu:** None. **R. Bassel-Duby:** None. **E.N. Olson:** None.

726

An Improved Cardiac Reprogramming System with the Aid of Two Chemical Compounds
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730

Celltype-Specific Functions in Dilated Cardiomyopathy Caused by the LMNA Gene Mutation
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731

Sorafenib Induces Cardiotoxicity via Damage to Cardiac Endothelial Cells
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732

Attenuation of Tnf- α Induced Injury in Cardiomyocytes by Chlorogenic Acid via Inhibiting Nf- κ B and Jnk Signals
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733

PRMT1 Suppresses Atf4-mediated Endoplasmic Reticulum Response In Cardiomyocytes
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M. Jeong: None. **B. Ahn:** None. **J. Pyun:** None. **I. Kwon:** None. **H. Cho:** None. **J. Kang:** None.

734

NF-κB Signaling Regulates Mitochondrial Permeability Transition Pore Opening of Cardiac Myocytes via Cyclophilin D (CypD) Modulation

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735

A Novel Class of Sphingolipids Mediate Autophagy and Apoptosis in Models of Ischemia

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736

Increased Cell Death in Regions of Elevated Aortic Wall Shear Stress in Bicuspid Valve Aortopathy

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737

N-ethylmaleimide sensitive factor (NSF) is Essential in Necrotic Cell Death

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E.K. Murray: None. **A.A. Lombardi:** None. **J.P. Lambert:** None. **J.W. Elrod:** None.

738

Comparative Cardiotoxicity of Tyrosine Kinase Inhibitors Ponatinib and PF114

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745

Voluntary Late-life Exercise Attenuates Frailty and Improves Maladaptive Changes Associated With Cardiac Aging in Female Mice

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E.S. Bisset: None. **S.E. Howlett:** None.

746

The Effect of Aging-related Metabolic Disorder on Resistin Expression and Valvular Heart Disorder

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R. Bouchareb: None. **N. Saadallah:** None. **R. Hajjar:** None. **D. Lebeche:** None.

747

Structural and Functional Changes of Rat Heart After High-dose Irradiation

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748

Circulating Extracellular Vesicles as Novel Biomarkers of Cardiovascular Risk in Older Women With Different Sitting Time Patterns

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Y. Chang: None. **Y. Avitia:** None. **S. Godbole:** None. **J. Bellettiere:** None. **C.L. Rock:** None. **R.E. Patterson:** None. **M.M. Jankowska:** None. **J. Kerr:** None. **M.A. Allison:** None. **L. Natarajan:** None. **D.D. Sears:** None.

749

Circulating miRNAs and Apoptosis Genes With Hyperglycemia in Ischemic Stroke Patient

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750

Gene Signatures to Distinguish Amyloid Cardiomyopathy Risk in Multiple Myeloma Patients

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751

The Inhibition of PARP Provides Greater cardioprotection in Mice With Heart Failure

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752

A Novel Senolytic Drug, Seno-7284 Ameliorates Aging and Age-related Cardiometabolic Disorders

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753

Exercise Capacity, Cardiac fibrosis and Left Ventricular Remodeling in a Rat Model of Chronic Pressure Overload: Serial Echocardiography, Pressure-Volume Analysis and Gene Expression Profiling

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754

The Relationship Between Obstructive Sleep Apnea and Coronary Plaque Instability: An Optical Frequency Domain Imaging Study

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T. Konishi: None.

755

Fas Ligand- and Nitric Oxide-Releasing Stent

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756

Sunitinib-Induced Cardiotoxicity in an Engineered Cardiac Microtissue Model With Dynamically Tunable Afterload

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C. Livingston: None. **A. Ramachandran:** None. **E. Corbin:** None. **A. Vite:** None. **A. Bennett:** None. **K.B. Margulies:** None.

757

β -arrestin-Biased β 2-Adrenergic Receptor Signaling Mediates Novel Mechanisms of Cardiomyocyte Contractility

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758

Assessing the Role of Polyphenols as a Vascular Protectant Against Drug-Induced Vascular Injury

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759

Circulating Preoperative microRNA-29, Biomarkers of Collagen Synthesis, and Age Predictive of Postoperative Atrial Fibrillation After Coronary Artery Bypass Grafting

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760

Metabolic Syndrome Impairs Cardiac Remodeling During Pregnancy in Mice

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765

Sex Difference in Cardiomyocyte Functional Etiology in Heart Failure with Preserved Ejection Fraction

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766

SGLT-Mediated Na⁺ Overload Results in Oxidative Stress and Abnormal SR Ca²⁺ Release in Diabetic Hearts

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770

Potential Explanation of the Mechanism for Loss of Function with G233D Mutation in Platelet Glycoprotein Iby: Results fromMolecular Dynamics Simulation

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771

Identification of Pathological Pathways in Hypertrophic Cardiomyopathy via Single Nuclei RNA-Sequencing

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772

The Highly Prevalent 25bp Intronic Deletion in *MYBPC3* is Benign Under Baseline Conditions

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773

Neonatal and Adult Cardiac Transcriptome Analysis Reveals Distinct Mechanisms in Noncompaction Dilated Cardiomyopathy Development Induced by p.K69R-MLP (Muscle Lim Protein) Mutation *in vivo*

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774

Gene-Environment Regulatory Circuit of Right Ventricular Pathology in Cyanotic Congenital Heart Defects

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775

Interaction of Phosphate Transport and Calcification in Placenta Vasculature

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776

MYBPC3 Mutations in Indian Patients with Hypertrophic Cardiomyopathy

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777

Dual-Specificity Phosphatase 6 Deficiency Protects Against Intimal Hyperplasia After Arterial Injury

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780

Duchenne Muscular Dystrophy Cardiac Exosomes Contribute to the Pathogenesis of Dystrophin-deficient Cardiomyopathy

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M. Gartz: None. **Z. Afzal**: None. **J.L. Strande**: None.

781

Doxorubicin-Induced Cardiotoxicity and Novel GATA4-Targeted Compounds

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Ruskoaho: None.

782

Human-induced Pluripotent Stem Cell-derived Cardiomyocytes as a Model for Trastuzumab-Induced Cardiac Dysfunction

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783

Epicardial Contribution to Arrhythmogenic Cardiomyopathy

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Rooij: None.

784

Eicosapentaenoic Acid, Unlike Other Omega-3 Fatty Acids, Inhibits Membrane Cholesterol Crystalline Domains Under Conditions of Hyperglycemia

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785

Modeling Congenital Heart Disease-Associated Variants in *GATA6* Using CRISPR/Cas9 and Human Induced Pluripotent Stem Cells

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786

A Novel Desmoplakin Mutation Contributes to Arrhythmogenic Cardiomyopathy

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787

Rose - A Novel Vascular Anti-inflammatory Agent

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790

Neutrophil Specialization in Blood and Heart After MI

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791

Genetic and Pharmacological Disruption of Epsins Attenuates Atherosclerosis

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H. Chen: None.

792

Core Cell Survival Requirements of Hypoxia Inducible Factors in Macrophages Dominate Isoform-Specific Function during Cardiac Repair

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M. Deberge: None. **C. Lantz:** None. **L. Wilsbacher:** None. **E.B. Thorp:** None.

793

Macrophage Transcription Factor EB Attenuates Left Ventricular Remodeling Via Lysosomal Lipolysis

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794

Endothelial Specific Ablation of Estrogen Receptor Alpha Rapid Signaling Revealed Exacerbated Vascular Remodeling Response

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795

TRAF2-GRK2 Interaction Mediates Non-Canonical Desensitization of Beta-Adrenergic Receptors to TNF- α

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796

Dysfunctional Immune Cell Clock Contributes to Heart Failure Progression

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800

HECT Domain Containing-3 (HECTD3) is a Novel Regulator of Cardiac Hypertrophy and Inflammation

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801

Characterization of Cardiac Myeloid Cells in Aged Mice and Their Role in Cardiac Dysfunction During Bacterial Infection

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N. Saljoughian: None. **Q. Wu:** None. **C. Kashef:** None. **S. Patel:** None. **L. Ganesan:** None. **W. Lafuse:** None. **M. Rajaram:** None.

802

Cardiomyocyte-derived Exosomal MicroRNAs Regulates Post-Infarction Inflammation and Myofibroblast Phenoconversion

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G. Santulli: None. **C. Sardu:** None. **J. Shu:** None. **A. Matarese:** None. **X. Wang:** None.

803

Sepsis-induced Acute Heart Failure is Driven by MEF2D-dependent Transcription

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R. Schell: None. **F. Alban:** None. **C. Haslinger:** None. **P. Theis:** None. **H.A. Katus:** None. **J. Backs:** None.

804

Elimination of Cells Expressing Senescence Associated Glycoprotein Attenuates Theatherosclerotic Diseases

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M. Suda: None. **I. Shimizu:** None. **Y. Yoshida:** None. **G. Katsuumi:** None. **Y. Hayashi:** None. **R. Ikegami:** None. **A. Nagasawa:** None. **M. Nakao:** None. **R. Fruuchi:** None. **T. Ozawa:** None. **T. Minamino:** None.

805

A Toll-like Receptor 9 Inhibitor Prevents the Development and Progression of Sterile Inflammatory Heart Failure Induced by Mitochondrial DNA Accumulation

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806

PD-1 in Cardiac Immune Responses After Ischemic Injury or Transverse Aortic Constriction

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D.A. Zlotoff: None. **C. Xiao:** None. **R.M. Grange:** None. **Y. Iwamoto:** None. **G. Freeman:** 7. Ownership Interest; Significant; Roche, Merck, Bristol-Myers-Squibb, EMD-Serono, Boehringer-Ingelheim, AstraZeneca, Dako, Novartis. 8. Consultant/Advisory Board; Modest; Roche, Bristol-Myers-Squibb, Xios, Origimed. **A. Rosenzweig:** None.

807

Rad Ablation as a Treatment to Target Cardiac Inotropy via L-type Calcium Channel Function

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B. Ahern: None. **B. Levitan:** None. **S. Veeranki:** None. **M. Shah:** None. **N. Ali:** None. **A. Sebastian:** None. **J. Li:** None. **J.E. Stelzer:** None. **D. Andres:** None. **J. Satin:** None.

808

Functional Characterization of a Novel Scn5a Mutation Associated with the Brugada Syndrome

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809

Chronic Testosterone Deficiency Increases Late Inward Sodium Current in Ventricular Myocytes from Aging Male C57BL/6 Mice

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S. Heinze-Milne: None. **S. Banga:** None. **O. Ayaz:** None. **S. Howlett:** None.

810

Structural and Electrophysiological Maturation of Human iPSC-Derived Atrial Cardiomyocytes to Serve as a Platform to Model Atrial Fibrillation

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811

The Role of Mitochondrial Stress and the Late Sodium Current in Ibrutinib-Mediated Atrial Fibrillation

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A. Menon: None. **B. Chalzan:** None. **L. Hong:** None. **A. sridhar:** None. **M. Zhang:** None. **D. Darbar:** None.

812

Mechanisms of Sinus Node Dysfunction and Chronotropic Incompetence in Rats with Heart Failure and Preserved Ejection Fraction

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813

Downregulation of the Cardiac Sodium Channel Nav1.5 Mediates Obesity-Induced Atrial Fibrillation

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A. Sridhar: None. **M. McCauley:** None. **L. Hong:** None. **A. Menon:** None. **S. Perike:** None. **M. Zhang:** None. **X. Ai:** None. **J. Yan:** None. **S. Youn:** None. **I. da Silva:** None. **M. Bonini:** None. **J. Rehman:** None. **D. Darbar:** None.

814

Trpv4 Deletion in Endothelium Protects Heart Against Pressure Overload Induced Hypertrophy

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815

Reduced Cardiac Transmembrane Protein 65 Resulted in Dilated Cardiomyopathy and Progressive Cardiac Fibrosis *in vivo*

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A.C. Teng: None. **L. Gu:** None. **M. Di Paola:** None. **M. Fatah:** None. **D. Chatterjee:** None. **T. Kislinger:** None. **R. Hamilton:** None. **A.O. Gramolini:** None.

816

Surgical Bilateral Stellate Ganglionectomy Reduces Mitochondrial Reactive Oxygen Species (mROS) and Prevents Sudden Cardiac Death (SCD) in Non-ischemic Heart Failure (HF)

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S. Dey: 2. Research Grant; Significant; Department of Defense, PRMRP, W81XWH-17-1-0345. **B. O'Rourke:** 2. Research Grant; Modest; R01 HL134821. **D. DeMazumder:** 2. Research Grant; Significant; NIH NHLBI 4R00HK130662.

820

Enoxaparin Reverses Ventricular Tachycardia and Torsades de Pointes in Rat Isolated Heart Model

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E.R. Vasques: None. **E.R. Vasques:** None. **I.L. Tersariol:** None. **H.B. Nader:** None. **C.M. Godoy:** None.

821

Experimental Verification of Value of $T_{peak}-T_{end}$ Interval in Ventricular Arrhythmia Inducibility in Early Repolarization Syndrome Model

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N. Yoon: None. **S. Hong:** None. **H. Jeong:** None. **K. Lee:** None. **H. Park:** None. **J. Cho:** None.

822

Enhanced Left Ventricle TGF β 2 Signaling in a Model of Dilated Cardiomyopathy

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823

The Extracellular Matrix Component, Hyaluronan, Provokes a Pro-Inflammatory Phenotype in Macrophages

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T.N. Audam: None. **S. Dassanayaka:** None. **A. Jurkovic:** None. **B. Long:** None. **K.R. Brittan:** None. **M. Wysoczynski:** None. **S.P. Jones:** None.

824

Thromboxane/Prostanoid Receptor Activation Increases Calpain-Mediated Proteolysis and Alters Calcium Handling and Fibrosis Following Right Ventricular Pressure Overload

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J.D. West: None. **K. Kim:** None. **T. Suzuki:** None. **C.**

Moore: None. **B.C. Knollmann:** None. **E.J. Carrier:** 3. Other Research Support; Modest; Study drug provided by Cumberland Pharmaceuticals.

825

Attenuation of Cardiac Fibrosis by Scleraxis Gene Deletion Improves Pressure Overload-Induced Cardiac Remodeling

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R.S. Nagalingam: None. **D.Y. Cheung:** None. **N.**

Aroutiounova: None. **D.S. Jassal:** None. **M.P. Czubyrt:** None.

826

Histone Deacetylase Inhibition Improves Heart Failure with Preserved Ejection Fraction Cardiopulmonary Phenotype and Induces Metabolomic Switch

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D.M. Eaton: None. **M. Wallner:** None. **R.M. Berretta:** None. **N. Bordag:** None. **J. Wu:** None. **M.Y. Jeong:** None. **Y.H. Lin:** None. **G. Borghetti:** None. **S.T. Baker:** None. **H. Zhao:** None. **P.P. Rainer:** None. **M.A. Oyama:** None. **D. von Lewinski:** None. **S. Mohsin:** None. **H. Post:** None. **C. Magnes:** None. **E. Zügner:** None. **T.A. McKinsey:** None. **M.R. Wolfson:** None. **S.R. Houser:** None.

827

Single-cell Transcriptomic Profiling Provides Insights Into Disease-related Processes During Hypertrophic Cardiomyopathy

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J. Eding: None. **M. Wright Clark:** None. **A. de Leeuw:** None. **B. Molenaar:** None. **A. Vink:** None. **M. Michels:** None. **J. van der Velden:** None. **E. van Rooij:** None.

Abstracts (continued)

828

The Functional Role of Myofibroblast-Expressed Smooth Muscle Alpha Actin in Post-Myocardial Infarction Tissue Healing

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X. Fu: None. **Q. Liu:** None. **L. Wang:** None. **J. Molkentin:** None.

829

Endothelial Estrogen Non-nuclear Signaling Plays a Key Role in Anti-remodeling Effects via cGMP Signaling in Failing Heart

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835

Development of Molecular Targeted Therapy Against Right Ventricular Failure: Evaluation by Transcriptome and *in vivo* Analysis

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836

Regulation of *Bmp7* and *Ctgf* Suppresses Dilated Cardiomyopathy and Cardiac Fibrosis

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J. Jiang: None. **C. Tan:** None.

837

Different Disease States in Heart Have Distinct Cardiac Interstitial Cells Contributing to Fibrosis

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H. Khalil: None. **S.M. Jones:** None. **P. Alam:** None. **B.J. Aronow:** None. **J.D. Molkentin:** None. **O. Kanisicak:** None.

838

High Molecular Weight FGF2 Contributes to Pressure Overload Induced Systolic Dysfunction by a Mechanism Associated with Modulation of the NR1D1 Orphan Nuclear Receptor Expression

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N. Koleini: None. **B.E. Nickel:** None. **R.S. Nagalingam:** None. **N.M. Landry:** None. **R.R. Fandrich:** None. **I.M. Dixon:** None. **M. Czubryt:** None. **P.A. Cattini:** None. **E. Kardami:** None.

839

Sphingosine 1-Phosphate Receptor 1 in Cardiomyocytes Protects Against Cardiac Fibrosis

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D.F. Leach: None. **J. Wolfe:** None. **R. Jorgensen:** None. **B. Lavelle:** None. **S. Shah:** None. **L. Wilsbacher:** None.

840

Epicardial Prestrained Confinement and Residual Stresses: A Newly Observed Heart Ventricle Confinement Interface

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841

Loss of S-nitrosylation of G Protein-Coupled Receptor Kinase 2 Leads to Cardiovascular Dysfunction With Aging

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M. Lieu: None. **C.J. Traynham:** None. **J. Petovic:** None. **G.P. Landesberg:** None. **S. Forrester:** None. **E. Gao:** None. **S. Eguchi:** None. **R. Scalia:** None. **W.J. Koch:** None.

842

Protein kinase G - Regulator of G protein Signaling 2 Axis of Cardiac Myocytes Critically Determines Cardiac Performance in Early Cardiac Remodeling

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843

Non-oxidized Protein Kinase G 1 Alpha Antagonizes mTORC1 Signaling in a Tuberin-dependent Manner to Ameliorate Cardiac Disease

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C.U. Oeing: None. **M.J. Ranek:** None. **B.L. Dunkerly-Eyring:** None. **D.A. Kass:** None.

844

β_{IV} -spectrin Regulates Cardiac Fibroblast Phenotype, Fibrosis, and Cardiac Function

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N.J. Patel: None. **D.M. Nassal:** None. **B.W. Scandling:** None. **A.D. Greer-Short:** None. **S.D. Unudurthi:** None. **X. Xu:** None. **P.J. Mohler:** None. **K.J. Gooch:** None. **T.J. Hund:** None.

845

Distinctive Inflammatory and Fibrotic Signature of Extracellular Vesicles from Epicardial Fat of Patients with Atrial Fibrillation
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O. Shaihov-Teper: None. **E. Ram**: None. **L. Levin-Kotler**: None. **N. Naftali-Shani**: None. **J. Leor**: None.

846

The Effects and Mechanisms of Pyridostigmine on Cell Proliferation and Fibrosis of Human Cardiac Fibroblasts
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L. Shen: None.

847

Adipocyte-specific Pharmacological Inhibition of Adipose Triglyceride Lipase (ATGL) Ameliorates Cardiac Fibrosis in Heart Failure
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S. Takahara: None. **S. Soni**: None. **N.J. Byrne**: None. **N. Parajuli**: None. **Z.H. Maayah**: None. **M. Ferdaoussi**: None. **J.L. Levasseur**: None. **A.K. Migglautsch**: None. **R. Breinbauer**: None. **J.R. Dyck**: None.

848

The Iron Chelator Deferiprone Clears Hemorrhagic Byproducts Following Acute Myocardial Infarction in a Swine Model of Ischemia-Reperfusion
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J.J. Weyers: 3. Other Research Support; Modest; We received the drug deferiprone and funding support from Apopharma, Inc. **R. Thomas**: 3. Other Research Support; Modest; We received the drug deferiprone and funding support from Apopharma, Inc.. **X. Qi**: None. **J. Barry**: None. **V. Rabadia**: 1. Employment; Significant; Employed by Aphopharma. **D. Manca**: 1. Employment; Significant; Employed by Aphopharma. **J. Connelly**: 1. Employment; Significant; Employed by Aphopharma. 7. Ownership Interest; Modest; A joint patent application was filed by ApoPharma and Sunnybrook Research Institute. **M. Spino**: 1. Employment; Significant; Employed by Aphopharma. 7. Ownership Interest; Modest; A joint patent application was filed by ApoPharma and Sunnybrook Research Institute. **B.H. Strauss**: None. **G.A. Wright**: 2. Research Grant; Significant; A research grant from the Ontario Research Fund: Research Excellence Program supports this work. 7. Ownership Interest; Modest; A joint patent application was filed by ApoPharma and Sunnybrook Research Institute. **N.R. Ghugre**: 2. Research Grant; Significant; A research grant from the Ontario Research Fund: Research Excellence Program supports this work. 3. Other Research Support; Modest; We received the drug deferiprone and funding support from Apopharma, Inc.. 7. Ownership Interest; Modest; A joint patent application was filed by ApoPharma and Sunnybrook Research Institute.

849

Drp1-dependent Altered Mitochondrial Dynamics Contribute to Protein Aggregation and Mitochondrial Dysfunction in R120G α B-crystallin-induced Proteotoxicity
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S. Alam: None. **C.S. Abdullah**: None. **R. Aishwarya**: None. **M. Morshed**: None. **S. Miriyala**: None. **M. Panchatcharam**: None. **M.S. Bhuiyan**: None.

850

Metabolic Landscape of Human Heart Failure
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E. Flam: None. **C. Jang**: None. **K. Bedi**: None. **K. Margulies**: None. **Z. Arany**: None.

851

NCLX Expression Attenuates Pathological Remodeling in Experimental Cardiac Hypertrophy and Non-ischemic Heart Failure
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J.F. Garbincius: None. **T.S. Luongo**: None. **D.W. Kolmetzky**: None. **A.N. Hildebrand**: None. **J.W. Elrod**: None.

852

The Pathological Role of Coagulation Factors in Promoting Brown Adipose Tissue Dysfunction and Systemic Metabolic Disorder in Obesity
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Y. Hayashi: None. **I. Shimizu**: None. **Y. Yoshida**: None. **R. Ikegami**: None. **G. Katsuumi**: None. **M. Suda**: None. **S. Fujiki**: None. **T. Minamino**: None.

853

GPX4 Gene Expression is Dose-responsive to Doxorubicin Exposure in iPSC-Cardiomyocytes and Correlated with Mitochondrial Function
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M.E. Reyes: None. **R.A. Callender**: None. **J. Ma**: None. **M.L. Grove**: None. **A.C. Morrison**: None. **M.A. Hildebrandt**: None.

854

The Role of Mitochondrial Permeability Transition in the Regulation of ETC Supercomplexes Assembly by OPA1
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S. Jang: None.

855

Crif1 Haploinsufficiency in Heart Impairs Mitochondrial Oxidative Capacity and Leads to Aggravated Cardiac Dysfunction in Ioproterenol Infusion Model

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S. Jin: None. **H. Seo:** None. **J. Jeong:** None.

856

Mitochondrial Protein Kinase B (akt) Translocation Mediates Insulin-stimulated Cardiac Glucose Oxidation

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Q.G. Karwi: None. **C.S. Wagg:** None. **T.R. Altamimi:** None. **G.D. Lopaschuk:** None.

857

MCUB Regulates the Molecular Composition of the Mitochondrial Calcium Uniporter Channel During Cardiac Stress to Limit Mitochondrial Calcium Overload

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858

NAD(H) Redox Imbalance in the Heart Accelerates Diabetic Cardiomyopathy

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859

Sepsis-Induced Cardiomyopathy is Caused by Mitochondrial Dysfunction Due to Protein Kinase C (PKC) Delta Activation

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J.P. Morrow: None. **L.C. Joseph:** None. **M.V. Reyes:** None. **K. Drosatos:** None.

860

Functional Characterization of a Novel Human Heart-specific Microprotein With a Potential Mitochondrial Localization and Role in Sarcomere Dynamics

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M.B. Muecke: None. **J.F. Schulz:** None. **V. Schneider:** None. **A. Sharma:** None. **C.N. Toepfer:** None. **S. van Heesch:** None. **J.G. Seidman:** None. **C.E. Seidman:** None. **N. Hübner:** None.

861

Inner Mitochondrial Collapsing in Response to Acute Overstretch of Rat Ventricular Papillary Muscles

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862

SGK-1 Metabolically Reprograms VSMC Energy Metabolism by Modulation of Substrate Utilization and Mitochondrial Structure

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K. Roggerson: None. **W. Zhong:** None. **O. Babayewa:** None. **S. Francis:** None.

863

Pathological Roles of Senometabolites in Cardiovascular Disorders

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864

Mitochondrial Morphology During Stress is Regulated by GJA1-20k Interaction With Actin

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865

The E3 Ubiquitin Ligase Parkin Regulates Metabolism From the Nucleus

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S.E. Shires: None. **R.H. Najor:** None. **L.J. Leon:** None. **M.Q. Cortez:** None. **Å.B. Gustafsson:** None.

866

Cardiac-specific Deletion of General Control of Amino-Acid Synthesis 5-like 1 Regulates Fatty Acid Oxidation in Diet Induced Obesity

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867

NAD⁺ Repletion Reverses HFpEF by Attenuating Myocardial Metabolic Dysfunction

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D. Tong: None. **G.G. Schiattarella:** None. **N. Jiang:** None. **F. Altamirano:** None. **P.A. Szweda:** None. **A. Elnwasany:** None. **D.I. Lee:** None. **L.I. Szweda:** None. **D.A. Kass:** None. **T.G. Gillette:** None. **J.A. Hill:** None.

868

A Cardiac Specific Branched Chain Aminotransferase Deletion Increases Insulin Stimulated Glucose Oxidation in the Mouse Heart
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G.M. Uddin: None. **S. Pherwani:** None. **C.S. Wagg:** None. **K. Gopal:** None. **R.A. Batran:** None. **L. Zhang:** None. **Y. Wu:** None. **N. Hussaini:** None. **S. Rawat:** None. **J.R. Ussher:** None. **G.D. Lopaschuk:** None.

869

Cysteine-based Redox Regulation of Soluble Guanylyl Cyclase
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C. Cui: None. **M. Alapa:** None. **P. Shu:** None. **V. Kholodovych:** None. **H. Li:** None. **A.V. Beuve:** None.

870

Cardiac Gene Therapy with Relaxin Receptor 1 Overexpression Protects Against Acute Myocardial Infarction and Associated Adverse Remodeling

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T. Devarakonda: None. **E. Kohlbrenner:** None. **A.G. Mauro:** None. **C. Cain:** None. **A. Das:** None. **R.J. Hajjar:** None. **F.N. Salloum:** None.

872

Inhibition of Spinal Astrocytes Activation Attenuates Myocardial Ischemia-Reperfusion Injury by Regulating NGF/TRPV1 Nociceptive Signaling

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873

Acetate Protects the Heart Against Ischemic Injury by Alternating TCA Cycle-related Metabolites and AMP-activated Protein Kinase

Genki Ichihara, Yoshinori Katsumata, Shinichi Goto, Seien Ko, Takahiro Hiraide, Hiroki Kitakata, Hidenori Moriyama, Kohsuke Shirakawa, Atsushi Anzai, Jin Endo, Masaharu Kataoka, Fukuda Keiichi, Motoaki Sano, Keio Univ Sch of Med, Tokyo, Japan

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874

Role of Ginsenoside Rb1 in Resistin-Induced Vascular Smooth Muscle Cell Dysfunction

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875

Cardiomyocyte Derived DDT Protects Against Myocardial Infarction Induced Heart Failure

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876

Chronic GPER1 Cardioprotection in H9c2 Myoblasts is Mediated by an MST1-YAP Pathway and Mitochondrial Function and Dynamics
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N. Madungwe: None. **Y. Feng:** None. **J.C. Bopassa:** None.

877

Thioredoxin-1 Maintains Cardiac Function and Metabolic Gene Expression via mTOR Signaling

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S. Oka: None. **W. Mizushima:** None. **C. Huan:** None. **J. Sadoshima:** None.

879

Aldehyde Dehydrogenase Activator 1 (Alda-1) Attenuates Coronary Endothelial Dysfunction-Mediated Cardiac Damage in ALDH2*2 Diabetic Mice

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G. Pan: None. **H. Pang:** None. **M. Deshpande:** None. **S. Palaniyandi:** None.

880

The Role of Sialidase Neu3 in the Cardiac Response to Ischemia and Reperfusion Injury

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882

The Valosin-containing Protein Resists Pathological Cardiac Calcium Overload via Inhibiting Mitochondrial Calcium Uptake

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S. Stoll: None. **B. Ma:** None. **E. Behringer:** None. **H. Qiu:** None.

883

Nadph Oxidase Nox1-dependent Endocytosis and Activation is Regulated by a Conserved Trafficking Motif in Vascular Smooth Muscle Cells

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B.M. Schickling: None. **J. Streeter:** None. **F.J. Miller:** None.

884

Expression of Anti-mir-33a-5p in Cultured Endothelial Cells Increases Macrophage and Smooth Muscle Cell Cholesterol Efflux by Exosome-mediated Transfer of Anti-mir-33a-5p

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A. Stamatikos: None. **L. Vojtech:** None. **E. Knight:** None. **L. Bi:** None. **B. Wacker:** None. **C. Tang:** None. **D. Dichek:** None.

885

The Role of Paraonase 2 (PON2) in Mitochondrial Membrane Phospholipid Composition and Lipid Peroxidation

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886

Mitochondrial Stress Response by Lonp1 in Cardiac Function and Protection

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887

Activation of Autophagic Flux Rescues Mitochondrial Homeostasis During Cardiac Ischemia/Reperfusion Injury

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J. Yang: None. **G.W. Cho:** None. **J. He:** None. **X. Zeng:** None. **K. Ebner:** None. **S. Ballinger:** None. **M. Young:** None. **S. Prabhu:** None. **J. Zhang:** None. **J.A. Hill:** None. **M. Xie:** None.

888

Exosomes Derived From Endothelial Progenitor Cells Modulate Flow-Induced Remodeling and Increase Angiogenesis/Arteriogenesis in Mesenteric Arteries of Mice

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A.V. Dantas: None. **J. Bobi:** None. **L. Grimaud:** None. **E. Vessieres:** None. **D. Henrion:** None.

890

Vascular MicroRNA-204 Promotes Diabetes-Associated Endothelial Dysfunction

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R.R. Gaddam: None. **Y. Kim:** None. **M. Gabani:** None. **J. Proff:** None. **J.S. Jacobs:** None. **K. Irani:** None. **A. Vikram:** None.

891

Phosphorylation of RNA Binding Motif 20 is a Novel Target to Reduce Myocardial Stiffness in Diastolic Dysfunction

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M. Sun: None. **Y. Jin:** None. **C. Zhu:** None. **M. Rexiati:** None. **H. Cai:** None. **M. Liss:** None. **M. Gotthardt:** None. **Y. Ge:** None. **W. Guo:** None.

892

Ablation of MiR-144 Increases Vimentin Expression and Atherosclerotic Plaque Formation

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893

MicroRNA-448 Regulates the Cardiac Sodium Channel During Ischemia

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894

Inhibition of Long Noncoding RNA IncExACT1 Induces Physiological Cardiac Hypertrophy and Protects Against Pathological Hypertrophy

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895

The Role of Poly(rC)-Binding Protein-1 in Heart Development

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896

Cardiomyocyte-derived Mir-200c-3p In Exosomes Affects Endothelial Angiogenic Capacity And Impairs Cardiac Function

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900

Troponin I Tyrosine 26 Phosphorylation Accelerates *in vivo* Myocardial Relaxation
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901

Muscle-specific Stress Fibers Give Rise to Sarcomeres in Cardiomyocytes
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902

Leveraging Natural Cardiomyocyte Variability to Investigate Downregulation of β -1 Adrenoceptors Following Dobutamine Treatment
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J. Clark: None. **J. Weiss:** None. **S. Campbell:** None.

903

Rapamycin Treatment Reduces Myocardial Stiffness and Promotes Cardiomyocyte Relaxation to Restore Diastolic Function in Old Murine Hearts
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Y. Chiao: None. **K. Kooiker:** None. **Y. Cheng:** None. **J. Powers:** None. **M. Razumova:** None. **H. Granzier:** None. **M. Regnier:** None. **P. Rabinovitch:** None. **F. Moussavi-Harami:** None.

904

Disrupted Mechanobiology Links the Molecular and Cellular Phenotypes in Familial Dilated Cardiomyopathy
Michael J Greenberg, Sarah R Clippinger, Paige E Cloonan, Melanie Ernst, Tom Stump, Lina Greenberg, Washington Univ, Saint Louis, MO
M.J. Greenberg: None. **S.R. Clippinger:** None. **P.E. Cloonan:** None. **M. Ernst:** None. **T. Stump:** None. **L. Greenberg:** None.

905

Length Dependent Activation in Porcine Cardiac Myofilaments is Modulated by Mavacamten
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906

Age-Dependent Modifications in Cardiac Myofilament Proteins are Graded by Overall Health, Measured as Frailty, in Aging Male and Female C57BL/6 Mice
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A. Kane: None. **E.S. Bisset:** None. **K. Keller:** None. **W.G. Pyle:** None. **S.E. Howlett:** None.

907

Understanding Cardiomyocyte Mechanosensing Utilizing CRISPR-Cas9 Based Screening Methods
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F. Ladha: None. **A. Pettinato:** None. **K. Thakar:** None. **J.T. Hinson:** None.

908

Mechanism of Calcium Sensitivity Modulation of Cardiac Troponin C by Small Molecules Illuminated by Umbrella Sampling Simulations
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S. Lindert: None.

909

Determining the Role of the Co-chaperone BAG3 at the Cardiac Myofilament
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910

Identification of Novel Cardiac Sarcomere Interactions Using BioID Proximity-labeling
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911

New Promoters to Improve the Efficiency of Cardiac Gene Therapies Using 2 Deoxy-ATP
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K.Z. Robeson: None. **F. Moussavi-Harami:** None. **J. Davis:** None. **M. Regnier:** None.

915

Dysregulation of the Myosin and Myosin Binding Protein-C interaction in Hypertrophic Cardiomyopathy

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R.R. Singh: None. **J.W. McNamara:** None. **S. Sadayappan:** 2. Research Grant; Significant; R01HL130356, R01HL105826, R01AR067279, R01/R56HL139680. 8. Consultant/Advisory Board; Significant; Amgen, Merck, Astra Zeneca.

916

Evidence of Cardiac Myosin Dephosphorylation by Two Distinct Pools of Myosin Light Chain Phosphatases

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917

Actively Blocking Nuclear Localization of G Protein-Couple Receptor 5 Blunts Hypertrophy and Heart Failure After TAC

Ryan Coleman, Eric W Barr, Kurt Chuprun, Walter J Koch, Lewis Katz Sch of Med, Philadelphia, PA

R. Coleman: None. **E.W. Barr:** None. **K. Chuprun:** None. **W.J. Koch:** None.

918

Pre-B-cell Leukemia Homeobox Interacting Protein 1 is a Novel Regulator of Growth Signaling in the Heart

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K.M. Grimes: None. **A. Pyo:** None. **J.D. Molkentin:** None.

919

Intercalated Disk Protein Xin-beta is Required for the Hippo/YAP Signaling in the Heart

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920

Mutual Potentiation Between Myofibril Assembly and Serum Response Factor in Cardiomyocyte Maturation

Yuxuan Guo, Blake Jardin, Isha Sethi, Behzad Moghadaszadeh, Alan Beggs, William Pu, Boston Children's Hosp, Boston, MA

Y. Guo: None. **B. Jardin:** None. **I. Sethi:** None. **B. Moghadaszadeh:** None. **A. Beggs:** None. **W. Pu:** None.

921

Carvacrol Protects Against Diabetes-induced Hypercontractility in the Aorta Through Activating Pi3k/akt Pathway

Yun Liu, Kai-Ting Ma, Jie Wei, Yun-Pei Mai, Xiao-Xia Qiu, Han Wei, Ning Hou, Jian-Dong Luo, Guangzhou Medical Univ, Guangzhou, China

Y. Liu: None. **K. Ma:** None. **J. Wei:** None. **Y. Mai:** None. **X. Qiu:** None. **H. Wei:** None. **N. Hou:** None. **J. Luo:** None.

922

Cardiac-specific Deletion of Orai3 Channel Causes Dilated Cardiomyopathy

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S. Mancarella: None. **S. Kamatham:** None.

923

Pharmacological Activation of Ampk With a Direct Pan-ampk Activator Results in a Worsening of a Hf Phenotype in Mice

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924

The Role of Protein Kinase C Isoforms in Cardiomyocyte Hypertrophy

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925

Insulin Inhibits β -adrenergic Receptor Resensitization Through PI3Ky Insulin Inhibits β -adrenergic Receptor Resensitization Through PI3Ky

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926

Regulation of Fibrosis by Phospholipase C α 949 in Cardiac Fibroblasts

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930

Aerobic Dose Intensity and the Human Exercise Plasma Proteome

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J.S. Guseh: None. **T.W. Churchill:** None. **A. Yeri:** None. **C. Lo:** None. **M. Brown:** None. **A. Rosenzweig:** None. **A. Baggish:** None.

931

Compensatory Response of Perivascular Adipose Tissue to Vascular Dysfunction in Metabolic Syndrome Rats Involves Apelin

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932

Translated Alternative Isoforms Coincide With Disordered Sequences in the Cardiac Proteome

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933

Integrated Omics Analysis of Diabetic Heart Failure in Human Myocardium

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934

Physical and Genetic Interaction Analyses in Human Pluripotent Stem Cell-Derived Cardiomyocytes to Study Protein Quality Control Disease in the Heart

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936

Entropy of Cardiac Rhythm Uniquely Predicts Mortality in a Multi-site Polysomnography (psg) Study of Ambulatory Asymptomatic Community Adults with Heart Failure

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P. Umaphathi: None. **M. Samson:** None. **N. Hajizadeh:** None. **T. Lin:** None. **G.A. Conway:** None. **E. Gullar:** None. **B. O'Rourke:** None. **T. McGinn:** None. **S.R. Jones:** None. **D. DeMazumder:** 2. Research Grant; Significant; NIH NHLBI 1K99HL130662-01, NIH NHLBI 4R00HK130662, NIH NHLBI 1UH54HL119810, AHA 17UNPG33860002, AHA 18IFUNP33990024, AHA 18AMTG34280046.

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Etv2 Regulates Endothelial Gene Expression with Its Novel Binding Partner Vezf1

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938

BET Bromodomain Protein 4 (BRD4) Governance of Cardiovascular Disease Stress-related Cardiomyocyte Remodeling

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939

Mdm2 Induces Vascular Calcification Through Its E3 Ligase Activity
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940

Global Analysis of Histone Modifications and Long-range Chromatin Interactions Revealed the Differential Cistrome Changes and Novel Transcriptional Players in Dilated Cardiomyopathy

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941

LncRNA HBL1 Regulates Human Cardiogenesis Through Interacting MIR1 and PRC2 Complex

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943

Circulating Mirnome in Obese and Lean Heart Failure Patients: A Case-control Study

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944

Differential Dna Methylation Co-segregates With the Severity of Heart Failure

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945

A Novel Role of Cardiac DNA Methylation as a Regulator of Fibrosis in Human Diabetic Heart Failure

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L.A. Potter: None. **M.E. Pepin:** 2. Research Grant; Modest; NIH. **A.R. Wende:** 1. Employment; Modest; UAB. 2. Research Grant; Modest; NIH.

946

Aberrant Activation of Nitric Oxide Synthase 1 in the Heart Accelerates Diastolic Dysfunction Through Protein S-nitrosylation

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S. Yoon: None. **M. Kim:** None. **Y. Kim:** None. **Y. Ahn:** None. **H. Kook:** None. **G. Eom:** None.

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