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.
<table>
<thead>
<tr>
<th>Time</th>
<th>Sunday, July 28</th>
<th>Monday, July 29</th>
<th>Tuesday, July 30</th>
<th>Wednesday, July 31</th>
<th>Thursday, August 1</th>
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<tr>
<td>7:00 AM</td>
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<td>7:00-8:00 AM Women in Science Breakfast Ticket required to attend</td>
<td>7:00-8:00 AM Continental Breakfast/Registration/Exhibits</td>
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<td>8:00 AM</td>
<td>8:00 AM Registration/Exhibits</td>
<td>8:00-9:15 AM Concurrent Sessions</td>
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<td>9:30 AM</td>
<td>9:15-10:15 AM Early Career Pre-Conference Session 1 “Next Big Thing” in Cardiovascular Research</td>
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<td>10:00 AM</td>
<td>10:15-10:30 AM Refreshment Break/Exhibits</td>
<td>11:00 AM-Noon General Session 5 Keynote Lecture</td>
<td>11:00-11:45 AM General Session 10 Outstanding Early Career Investigator Award Competition</td>
<td>11:00 AM Adjourn</td>
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<tr>
<td>10:30 AM</td>
<td>10:30-11:15 AM Early Career Pre-Conference Session 2 “Next Best Thing” in Cardiovascular Research</td>
<td>11:00 AM-Noon General Session 5 Keynote Lecture</td>
<td>11:00-11:45 AM General Session 10 Outstanding Early Career Investigator Award Competition</td>
<td>11:00 AM Adjourn</td>
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<td>NOON</td>
<td>Noon-6:00 PM Asian Symposium</td>
<td>NOON-1:30 PM Lunch on your own/Poster viewing/Exhibits</td>
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<td>11:45 AM-1:30 PM Lunch on your own/Poster viewing/Exhibits</td>
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<tr>
<td>1:00 PM</td>
<td>1:00-2:35 PM Concurrent Sessions 1A: HFpEF: Unraveling the Gordian Knot</td>
<td>1:30-2:45 PM Concurrent Sessions</td>
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<tr>
<td>3:00 PM</td>
<td>3:00-4:00 PM Concurrent Sessions 2A: Beyond Myocytes and Fibroblasts: Forgotten Cells of the Heart</td>
<td>3:15-4:30 PM Concurrent Sessions</td>
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<td>3:30 PM</td>
<td>4:00-7:00 PM Poster Session 1 and Reception</td>
<td>4:30-7:00 PM Poster Session 2 and Reception</td>
<td>4:30-7:00 PM Poster Session 3 and Reception</td>
<td>7:00 PM Early Career Investigator Social Event Ticket required to attend</td>
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<tr>
<td>6:00 PM</td>
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<td>7:00-10:00 PM Council Dinner Ticket required to attend</td>
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<td>7:00 PM</td>
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Questions and Information

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

Telephone: 888.242.2453 (inside the United States)
214.570.5985 (outside the United States)
Fax: 214.373.3406
Email: scientificconferences@heart.org
Website: professional.heart.org

Professional Membership Customer Service
Lippincott Williams & Wilkins
Telephone: 800.787.8984 (inside the United States)
301.223.2307 (outside the United States)
Fax: 301.223.2327
Email: ahaonline@lww.com

For information on upcoming American Heart Association Scientific Conferences, visit professional.heart.org

To access a schedule of future conferences sponsored by AHA, follow these simple steps:

- From the home page, click on the “Education & Meetings” tab in the upper navigation bar
- 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 gratefully acknowledges support of BCVS 2019 from:

AstraZeneca
Circulation Research Journal
Novartis
Pfizer, Inc.

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

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
<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td><strong>Sunday, July 28</strong></td>
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<tr>
<td>Speaker Resource Room</td>
<td>Elm 1/2</td>
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<td>Asian Symposium</td>
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<td>Registration Opens</td>
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<td><strong>Monday, July 29</strong></td>
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<td>Registration</td>
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<td>Early Career Pre-Conference</td>
<td>Commonwealth</td>
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<td>Opening Welcome</td>
<td>Grand Ballroom A-B</td>
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<td>Refreshment Break/Exhibits</td>
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<td>Poster Session</td>
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<td>Women in Science Breakfast</td>
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<td>Keynote Lecture</td>
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<td>Poster Session</td>
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<td>Outstanding Early Career Investigator Award Competition</td>
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<td>Lunch and Learn</td>
<td>Grand Ballroom C-E</td>
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<td>Poster Session</td>
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<td>Council Dinner</td>
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<td>Speaker Resource Room</td>
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<td>Continental Breakfast</td>
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<tr>
<td>Concurrent Sessions</td>
<td>Grand Ballroom A-B</td>
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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

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

For customer support, please contact our National Engagement Center at 1-888-242-2453 (between 8:00 am–5:00 pm Central Standard Time) or email learn@heart.org
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:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<th>Time</th>
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<td>Monday, July 29</td>
<td>8:00 AM–6:00 PM</td>
<td>Wednesday, July 31</td>
<td>7:00 AM–6:00 PM</td>
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<tr>
<td>Tuesday, July 30</td>
<td>7:00 AM–6:00 PM</td>
<td>Thursday, August 1</td>
<td>7:00 AM–Noon</td>
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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/bcvsessions.

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:

<table>
<thead>
<tr>
<th>Name</th>
<th>Abstract Number</th>
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<tbody>
<tr>
<td>Peggi Angel</td>
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<tr>
<td>Ryan Burke</td>
<td>511</td>
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<tr>
<td>Jason Choi</td>
<td>730</td>
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<tr>
<td>Joanne Garbincius</td>
<td>234</td>
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<tr>
<td>Claudio Humeres</td>
<td>250</td>
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<tr>
<td>Stephani Page</td>
<td>933</td>
</tr>
<tr>
<td>Katharina Schimmel</td>
<td>720</td>
</tr>
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</table>

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:

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<th>Poster Session Date</th>
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<th>Tear-down Time</th>
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<tr>
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<td>Noon–4:00 PM</td>
<td>4:40–7:00 PM</td>
<td>Before 9:00 AM</td>
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<tr>
<td>Poster Session 2</td>
<td>Noon–4:00 PM</td>
<td>4:30–7:00 PM</td>
<td>Before 9:00 AM</td>
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<tr>
<td>Poster Session 3</td>
<td>Noon–4:00 PM</td>
<td>4:30–7:00 PM</td>
<td>Before 9:00 AM</td>
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</table>

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.
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.

<table>
<thead>
<tr>
<th>Name/Institution</th>
<th>Abstract Number</th>
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<tbody>
<tr>
<td>Luigi Adamo, Washington University in St Louis</td>
<td>114</td>
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<tr>
<td>Swati Dey, Johns Hopkins University</td>
<td>115</td>
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<tr>
<td>Gihoon Nah, Rutgers University</td>
<td>116</td>
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### Cardiovascular Outreach Award Recipients

<table>
<thead>
<tr>
<th>Name/Institution</th>
<th>Abstract Poster Number</th>
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<tbody>
<tr>
<td>Timothy Audam, University of Louisville</td>
<td>823</td>
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<tr>
<td>Cassandra Clift, Medical University of South Carolina</td>
<td>514</td>
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<tr>
<td>Ashraf Duzan, Cleveland State University/Cleveland Clinic</td>
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<tr>
<td>Viviana Fajardo, University of California Los Angeles (UCLA)</td>
<td>136</td>
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<tr>
<td>Gabriel Grilo, East Carolina University</td>
<td>577</td>
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<tr>
<td>Mark Lampert, UCSD</td>
<td>349</td>
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<tr>
<td>Njabulo Ngwenyama, Tufts University</td>
<td>112</td>
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<tr>
<td>Terrance Platt, Tuskegee University</td>
<td>881</td>
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<tr>
<td>Krystal Roggerson, Morehouse School of Medicine</td>
<td>862</td>
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<tr>
<td>Tarah Word, Baylor College of Medicine</td>
<td>215</td>
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### New Investigator Travel Award Recipients

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<th>Name/Institution</th>
<th>Abstract/Poster Number</th>
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<tr>
<td>Emma Agnew, Cincinnati Children’s Hospital</td>
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<td>Brooke Ahern, University of Kentucky</td>
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<td>Cornelis Boogerd, Hubrecht Institute</td>
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<tr>
<td>Bijun Chen, Albert Einstein College of Medicine</td>
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<tr>
<td>Matthew DeBerge, Northwestern University</td>
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<td>Jeremie Ferey, Washington University in St. Louis</td>
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<tr>
<td>Joanne Garbincius, Lewis Katz School of Medicine at Temple University</td>
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<td>Andrew Gibb, Lewis Katz School of Medicine, Temple University</td>
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<td>Yuxuan Guo, Boston Children’s Hospital</td>
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<td>Elena Guzzolino, Clinical Physiology- CNR Pisa</td>
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<td>Luis Hortells, Cincinnati Children’s Hospital</td>
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<td>Jijun Huang, David Geffen School of Medicine, UCLA</td>
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<td>Claudio Humere, Albert Einstein College of Medicine</td>
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<td>Johannes Janssens, University of Melbourne</td>
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<td>Ioannis Kyriazis, Temple University</td>
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<td>Tingsen Lim, Genome Institute of Singapore</td>
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<td>Brian Lin, Johns Hopkins University</td>
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<td>Chia-Feng Liu, Cleveland Clinic</td>
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<td>Shan Lu, University of California, Davis</td>
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<td>Daniel Matasic, The University of Iowa</td>
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<tr>
<td>Meraj Neyazi, Harvard Medical School</td>
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<td>Christian Oeing, Johns Hopkins University</td>
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<tr>
<td>Lara Ottaviani, CARIM School for Cardiovascular Diseases, Faculty of Health, Medicine and Life Sciences, Maastricht University</td>
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<tr>
<td>Frank Raucci, Vanderbilt University Medical Center</td>
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<td>Kaleen Robeson, University of Washington</td>
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<tr>
<td>Gabrielle Schiattarella, UT Southwestern Medical Center</td>
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<td>Katharina Schimmel, Cardiovascular Institute Stanford</td>
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<tr>
<td>Arun Sharma, Harvard Medical School</td>
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<td>Sarah Shires, University of California San Diego</td>
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Policy Information

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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
“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 PMCLX 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

9:45 Prenatal Exposure of Cigarette Smoke Impacts Cardiac Regeneration

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. Dirxx 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

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, Svatı Shah, Duke Univ, Durham, NC

11:00 Spatially Distributed N-glycomic Regulation in Human Aortic Valve Development and Disease
Janet Saunders, Cassandra L. Cliff, 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

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**  
Hamming Zhang, Bo Pan, Penglong Wu, Univ South Dakota, Vermillion, SD; Mark D. Rekhter, Lilly Res Labs, Indianapolis, IN; Alfred L. Goldberg, Harvard Medical Sch, Boston, MA; Xuejun Wang, Univ South Dakota, Vermillion, SD

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; Deepankar 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

Become an AHA Professional Member and save up to $400 off next year’s registration. (professional.heart.org/membership)
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

**Oral Abstract Presentation**

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

8:20  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, Asa B. Gustafsson, Univ of California San Diego, San Diego, CA

9:15–9:45 AM  
Grand Ballroom Foyer  
Refreshment Break/Exhibits
Program Agenda (continued)

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-beta 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

11:00 AM–Noon
Grand Ballroom A-B
General Session 5
Keynote Lecture

Moderators:
Elizabeth M. McNally, Chicago, Illinois
Jil 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:
Shi Yin Foo, Cambridge, Massachusetts
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 Burridge, Chicago, Illinois
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. Burkart, 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, Murdoch Children’s Res Inst and Dept of Physiology, The Univ of Melbourne, Melbourne, Australia; Theresa 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 IncRNA 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. Major, 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
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

Oral Abstract Presentation

9:00
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, Alizhu 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

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 Tarn, Tufts Medical Ctr, Boston, MA; Douglas Strathdee, Beatson Inst of Cancer Res, Glasgow, United Kingdom; Michael T. Chin, Tufts Medical Ctr, 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-Konstantopoulou, Baltimore, Maryland

Oral Abstract Presentation

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, Wynnewood, Pennsylvania

10:25
Shortened Telomeres: A Hallmark of Heritable Dilated Cardiomyopathies
Helen M. Blau, Stanford, California

Oral Abstract Presentation

10:45
Macroage Circadian Clock Disruption in Heart Failure
Sumanth D. Prabhu, Birmingham, Alabama
### 9:45-11:00 AM
**Commonwealth Ballroom**
**Concurrent Session 9B**
**Workshop 2: Fostering Mutually Beneficial Collaborations Between Clinicians and Basic Scientists**

**Moderators:**
Ali J. Marian, Houston, Texas  
Jennifer Strande, Milwaukee, Wisconsin

**Panelists:**
Jane Freedman, Worcester, Massachusetts  
Thomas Hund, Columbus, Ohio  
Jonathan 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  
Kendry 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*
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

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 Fahal, 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

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

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 AM
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
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
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| **Excitation-Contraction Coupling**<br>**Poster abstracts:** 190, 191, 192, 460, 461, 462, 765, 766 | **Sarcomeric Function and Contractility**<br>**Oral abstracts:** 109 | **Poster abstracts:** 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 915 | **Signal Transduction Pathways**<br>**Poster abstracts:** 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 625, 626, 627, 628, 630, 631, 632, 633, 634, 635, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926 |
| **Genetics and Genomics of Cardiovascular Disease**<br>**Oral abstracts:** 121 | **Systems Approach to Cardiovascular Biology**<br>**Oral abstracts:** 119 | **Poster abstracts:** 360, 361, 362, 363, 364, 365, 640, 641, 642, 643, 644, 645, 646, 930, 931, 932, 933, 934, 936 | **Transcriptional and Epigenetic Regulation of Gene Expression**<br>**Oral abstracts:** 104, 107, 108 | **Poster abstracts:** 368, 369, 370, 371, 372, 373, 374, 375, 377, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 937, 938, 939, 940, 941, 943, 944, 945, 946 |
| **Human Cellular Models of Disease**<br>**Poster abstracts:** 208, 209, 210, 211, 212, 213, 214, 215, 476, 477, 478, 479, 480, 481, 482, 780, 781, 782, 783, 784, 785, 786 | | | Next year’s conference: July 27-30, 2020. Visit professional.heart.org/bcvssessions for more information. |
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 Emanuelli, Imperial Coll London, London, United Kingdom

131
Cardiomyocyte Renewal and Cardiac Outcomes Following Injury in Young Swine

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 Hess, Univ Clinic of Bonn, Bonn, Germany

133
Exosomal Transfer of Muscle Specific Mir-499 to Endothelial and Endothelial Progenitor Cells Impairs Angiogenesis in Diabetics
Zhongjian Cheng, Venkata Naga Srikant Garikapati, Maria Cimini, May Trungcao, Chunlin Wang, Vandana Mallaredy, Grace Huang, Jia Yu, Cindy Benedict, Suresh K Verma, Raj Kishore, 3500 N BROAD ST MEHR983, Philadelphia, PA

134
Direct Reprogramming of Fibroblasts into a Cardiovascular Tissue
Jaeyeon 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
Ejal Abu-El-Rub, Weiang Yan, Glen Lester Sequiera, Niketa Sareen, Sanjiv Dhingra, St. Boniface Gen Hosp Res Cen, Winnipeg, MB, Canada

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

137
The Role of TNNI3K 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

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 Mallaredy, Temple Univ, Philadelphia, PA
V. Mallaredy: 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, Bhalibita Tayler, Lina Guan, First Affiliated Hosp of Xinjiang Medical Univ, Urumqi, China
Y. Mu: None. W. Wang: None. B. Tayler: None. L. Guan: None.

145
Isolation & Characterization of Heart-field Specific Cardiomyocytes
Arash Pezhouman, James L. Engel, Ngoc B Nguyen, Rhyss JP Skelton, Peng Zhao, Blake W Gilmore, Nicholas Hornstein, Reza Ardehali, ucla, Los Angeles, CA

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146
Investigating and Inhibiting Neutrophil Extracellular Trap Formation in the Heart
Michael N Sayegh, Lanfang Wang, Eric Y. Shih, Emory Univ, Atlanta, GA; Woopin 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

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

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-1a/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

150
Creation and Characterization of Functional, Human Pediatric-Sized Cardiac Rings With Human iPSC-derived Cardiomyocytes
Karisa 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

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

153
Dexamethasone Inhibits Regeneration and Causes Ventricular Aneurysm in the Neonatal Porcine Heart After Myocardial Infarction
Lei Ye, Zhonghao Tao Tao, Sze Jie Loo, Leping Su, Shihua Tan, Desiree Abdurrahim, Nati Heart Ctr Singapore, Singapore, Singapore; Janise Lalic, Teck Hock Lee, Singapore Bioimaging Consortium, Singapore, Singapore; Rusan Tan, Stuart Alexander Cook, Nati Heart Ctr Singapore, Singapore, Singapore

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 Ph Vary, Maine Medical Ctr Res Inst, Scarborough, ME; Douglas B Sawyer, Maine Medical Ctr Res Inst, Portland, ME

155
Lin28 Enhances Cardiac Progenitor Cell Ability to Repair the Heart by Reprogramming Cellular Metabolism

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.

157
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; Shaiful 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

158
IIF Increases Phagocytosis of Necrotic Cells in a Cd36-dependent Manner
Mingzhuang Chen, Chinese Univ of Hong Kong, Hong Kong, China
M. Chen: None.
162
Liproxstatin-1 Treatment Protects the Myocardium Against I-R Injury
By Decreasing VDAC1 Levels and Increasing GPX4 Activity
Yansheng Feng, Ngocnitzashe B Madungwe, Nathalie Tombo, Li Liu, Abdulhafiz Aligian, 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. Aligian: None. J.C. Bopassa: None.

163
NFκB Promotes Oxidative Stress-induced Necrosis and Ischemia Reperfusion Injury Through NFκB2-ARE Pathway
Xiaoyun Guo, Yi Chen, Rachel Steinmetz, Siqi Hong, Hui He, Yachang Zeng, Qinghong 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, Wajhah 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

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, Ása 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. Á.B. Gustafsson: None.

167
Increased Mitophagy andlysophagy in High Fat Diet and Streptozotocin Induced Diabetic Cardiomyopathy
Joy R Patel, Satoru Kobayashi, Qiangrong Liang, New York Institue of Technology Coll of Ostecological 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
Marta Adamiadik, Divya Jha, Yaxuan Liang, Prabhu Mathiyalagan, Neha Agarwal, Erik Kohlbrenner, Elena Chespurok, Dongtak Jeong, Delaline Ceholski, Cardiovascular Res Ctr, Icahn Sch of Med, New York, NY; Nicole Dubois, Dept of Developmental and Regenerative Biology, Mindich Child Health and Development Inst, Black Family Stem Cell Inst, Icahn Sch of Med, Mount Sinai, New York, NY; Roger Hajjar, Susmita Sahoo, Cardiovascular Res Ctr, Icahn Sch of Med, New York, NY
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Hemodynamic Status from Photoplethysmography, Signs of Successful Pregnancy
Chi-Wei Chang, Mi-Ann medical center, Taipei, Taiwan; Dan ni Xie, Shu jia Wang, Xia ron Li, Meng jie Li, Chun Huang, An ron Wang, Li Zhou, Inst of the reproductive center of Natl Health and Family Planning Commission, Nanning, China; Xiao feng Zhu, Inst of the reproductive center of Natl Health and Family Planning Commission, Nanning, Taiwan; Yan mei Li, Inst of the reproductive center of Natl Health and Family Planning Commission, Nanning, China; Zi-Xin Huang, Chang-Zhou Pulse Health Technology, Nanning, China; Gin-Chung Wang, JinMu Health Technology, Taipei, Taiwan
C. Chang: None. D. Xie: None. S. Wang: None. X. Li: None. M. Li: None. C. Huang: None. A. Wang: None. L. Zhou: None. X. Zhu: None. Y. Li: None. Z. Huang: None. G. Wang: None.

178
Development of a New Structural Family of Microbial Choline Trimethylamine Lyase Inhibitors for the Treatment and Prevention of Cardiovascular Disease
Ashraf Sabri Duzan, Cleveland State Univ / Cleveland Clinic, Cleveland, OH
A.S. Duzan: None.

179
Resistin Regulates ATP-citrate lyase Expression a Key Metabolic Enzyme of Lipogenesis and Histone acetylation in Human Macrophage
Nezam Haider, Pricila Moly, Weifeng Lu, Wei Zhou, Univ of Arizona, Tucson, AZ

180
Blood Outgrowth Endothelial cell-derived Exosomes Mediate Therapeutic Neovascularization
Stefan P Janssens, Arief Bibowo, Hilde Gillijns, Ellen Caluwe, Denise Veltman, Univ Hosp Gasthuisberg, Leuven, Belgium; Leen Delrue, OLV Hosp, Aalst, Belgium; Jozef Bartsunk, Univ Hosp Gasthuisberg and OLV Aalst, Leuven, Belgium

181
Anti-inflammatory Effects of Macitentan on Monocrotaline-induced Pulmonary Hypertension in a Rat Model
Kyung-hee Kim, Sejong General Hosp, Bucheon, Korea, Republic of; Seong-Woon Rha, Yoonjee Park, Jae Kyeong Byun, Korea Univ Guro Hosp, Seoul, Korea, Republic of
K. Kim: None. S. Rha: None. Y. Park: None. J. Byun: None.

182
Left Ventricular Diastolic Dysfunction in HIV-infected ART-naive and HIV-negative Tanzanian Adults: A Cross-sectional Study
Justin Kingery, Weill Cornell Med, New York, NY; Edmund Damas, Samuel Kalluyua, Weill Bugando Medical Ctr, Mwanza, Tanzania, United Republic of; Atif Pirmohamed, Parag Goyal, Myung Hee Lee, Weill Cornell Med, New York, NY; Fredrick Kalokola, Bernard Desdarius, Weill Bugando Medical Ctr, Mwanza, Tanzania, United Republic of; Robert Peck, Weill Cornell Med, New York, NY

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

184
Cardioprotective Effects of Brain-derived Neurotrophic Factor rs6265 Polymorphism in Duchenne Cardiomyopathy

185
Role of Substance P in Pathogenesis of Chemotherapy Associated Cardiotoxicity.
Ashiq Legi, Prema Robinson, Univ of Texas MD Anderson CAN, Houston, TX
A. Legi: None. P. Robinson: None.

186
Superiority of Sacubitril/Valsartan Over Valsartan Alone in Attenuating Pressure Overload-induced Cardiac Fibrosis and Oxidative Stress
Presley L. Cannon, Erica J. Carrier, Antonis K. Hatzopoulos, Hind Lal, Cristi L. Galindo, Vanderbilt Univ Medical Ctr, Nashville, TN
P. Robinson: None. L. Cannon: None.

187
Polycystin-1 Assembles with Kv Channels to Govern Cardiomyocyte Repolarization and Contractility
Francisco Altamirano, Gabriele G. Schiattarella, Kristin M. French, Soo Young Kim, UT Southwestern Medical Ctr, Dallas, TX; Felipe Engelberger, Pontificia Univ Catolica de Chile., Santiago, Chile; Sergi Kyrchenko, Elisa Villalobos, Dan Tong, Jay W. Schneider, UT Southwestern Medical Ctr, Dallas, TX; Cesar A. Ramirez-Sarmiento, Pontificia Univ Catolica de Chile., Santiago, Chile; Sergio Lavandero, Thomas G. Gillette, Joseph A. Hill, UT Southwestern Medical Ctr, Dallas, TX

188
Difference in Calcium Sensitivity Between Right and Left Ventricles with Lower Expression of Calcium Binding Proteins in Right Ventricular Myocytes
Abstracts (continued)

192 Sex Dependent Differences in Cardiac Myocyte Excitation-Contraction Coupling After Chronic Stimulation of the Delta or Kappa Opioid Receptors During Normoxic and Hypoxic Conditions
Matthew Klos 44106, UH Rainbow Babies and Children’s Hosp, Cleveland, OH; Ramiz Ahmad, Isabella Pua, Kayla Hicks, Shreyas Suresh, Case Western Reserve Univ, Cleveland, OH; Sherry Morgenstern, Eric Devaney, UH Rainbow Babies and Children’s Hosp, Cleveland, OH
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, Fijiwi Hosp, Beijing, China
P. Yu: None. Z. Ren: None. L. Wang: None.

195 Epigenetic Mechanisms Underlying Anthracycline-Induced Cardiotoxicity
Ching Kit Chan, Yee Phong Lim, Wilson Lok Wen Tan, George C Anene-Nzelu, Shi Ling Ng, Ying Li, Tuan L Darh, Roger Sik Yin Foo, Natl Univ of Singapore, Singapore, Singapore

196 CELA2A is a Pluripotent Insulinotropic Peptide
Sahar Esteghamat, James Samuel Broughton, Emily Smith, Rebecca Cardone, Tarun Tyagi, Mateus Guerra, Andrade Szabó, Nelson Ugwu, Mitra Mani, Bani Azari, Gerald Kayingo, Sunny Chung, Mohsen Fatihadsaf, Ephram Weiss, Jeffrey Bender, Shrikant Mane, Richard Litton, Adebowale Adeniran, Michael Nathanson, Fred Gorelick, John Hwa, Miklos Sahin-Toth, Renata Belfort-DeAguiar, Richard Kibbey, Anny Mani, Yale Sch of Med, New Haven, CT

197 Transcription Factor Interactome in Human IPS-derived Cardiac Progenitors is Enriched for Proteins Associated with Congenital Heart Disease
Barbara Gonzalez Teran, Maureen Pittman, Desmond Richmond-Buccola, Kailiann Samse, Bonnie Cole, Ruth Huttenhain, Michael McGregor, Nevan Krogan, Katherine Pollard, Deepak Srivastava, Gladstone Insts, San Francisco, CA

198 Single-cell Reconstruction of Differentiation Trajectory Reveals a Critical Role of Ets1 in Human Cardiac Lineage Commitment
Hang Ruan, Univ of Texas Health Science Ctr at Houston, Houston, TX; Yingnan Liao, Li Wang, State Key Lab of Cardiovascular Disease, Fuwai Hosp, Natl Ctr for Cardiovascular Diseases, Chinese Acad of Medical Sciences and Peking Union Medical Coll, Beijing, China; Leng Han, Univ of Texas Health Science Ctr at Houston, Houston, TX
H. Ruan: None. Y. Liao: None. L. Wang: None. L. Han: None.

199 The Role of miR-987 in Homeostasis of the Aging Heart in Drosofila
Alyssa M Hohman, Elizabeth M McNell, Iowa State Univ, Ames, IA
A.M. Hohman: None. E.M. McNell: None.

200 Targeting the Highly Abundant Circular RNA, circHeart, in Cardiomyocytes Attenuates Pressure Overload Induced Hypertrophy
Tingsen Benson Lim, Genome Inst of Singapore, Singapore, Singapore
T.B. Lim: None.

201 Roles of PIKfyve in Cardiac Fibroblast Migration
Guangming Luo, Lois S Weisman, Univ of Michigan, Ann Arbor, MI
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
Aël Fahed, Harvard Medical Sch, Boston, MA; Georges Nemer, Fadi Bitar, Samir Araout, Antoine Abche, American Univ of Beirut, Beirut, Lebanon; James Ware, Imperial Coll London, London, United Kingdom; Manal Batrawi, Athar Khalil, American Univ of Beirut, Beirut, Lebanon; Steven DePalma, Barbara McDonough, Harvard Medical Sch, Boston, MA; Mariam Arabi, American Univ of Beirut, Beirut, Lebanon; Jonathan Seidman, Christine Seidman, Harvard Medical Sch, Boston, MA

203 Reliable Biomimetic Culture System for Pig and Human Heart Slices
Riham Abouleisa, Qinghui Ou, Univ of Louisville, Louisville, KY; Zoé Jacobson, Tenaya Therapeutics, South San Francisco, CA; Xian-Liang Tang, Sajedah M. Hindi, Ashok Kumar, Univ of Louisville, Louisville, KY; Kathryn N. Ivey, Tenaya Therapeutics, South San Francisco, CA; Guruprasad Giridharan, Ayman Al-Baz, Kenneth Brittian, Benjamin Reed, Bradford G. Hill, Steven P. Jones, Roberto Bollì, Tamer M A Mohamed, Univ of Louisville, Louisville, KY

204 IPSC Derived Cardiomyocytes Reproduce Divergent Phenotypes Caused by a LQTS Type-1 Likely Pathogenic Mutation
Antonio C Campos De Carvalho, Danubia S Santos, Tais Hk Brunswick, Raphaela P Ferreira, Daiana S Araujo, Bruna Farjun, Isabela C Leitão, Federal Univ Rio De Janeiro, Rio De Janeiro, Brazil; Glauber M Dias, Jorge Coutinho, Natl Cardiology Inst, Rio De Janeiro, Brazil; Isadora M Vaz, Tamara Brogono, PUC-PR, Curitiba, Brazil; Fernando E F Cruz, Natl Cardiology Inst, Rio De Janeiro, Brazil; Adriana B Carvalho, Federal Univ Rio De Janeiro, Rio De Janeiro, Brazil; Georges Nemer, Eric Devaney, UH Rainbow Babies and Children’s Hosp, Cleveland, OH; Ramiz Ahmad, Isabella Pua, Kayla Hicks, Shreyas Suresh, Case Western Reserve Univ, Cleveland, OH; Sherry Morgenstern, Eric Devaney, UH Rainbow Babies and Children’s Hosp, Cleveland, OH
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Transcriptomic Changes During Induced Pluripotent Stem Cell-Derived Neural Crest Cell Differentiation Highlight Genes Involved in Endocardial Cushion and Cardiac Outflow Tract Development

Min Young Jang, Alexandre C Pereira, David M McKean, Joshua M Gorham, Daniel M DeLaughter, Radhika Agarwal, Arun Sharma, Tarsha L Ward, Daniel T Reichart, Christine E Seidman, J. G Seidman, Harvard Medical Sch, Boston, MA


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Substrate Elasticity Impacts Duchenne Muscular Dystrophy Cardiomyopathy Progression

Gaspar Pardon, Alex C.Y. Chang, Beth L Pruitt, Helen M Blau, Stanford Univ, Stanford, CA

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)

Alison Schroer, Guanghyun Jung, Stanford Univ, Stanford, CA; Kristina Kookier, Univ of Washington, Seattle, WA; Arjun Adhikari, Linda Song, Chao Liu, Kathleen Ruppel, Sean Wu, Stanford Univ, Stanford, CA; Beth Pruitt, Univ of California Santa Barbara, Santa Barbara, CA; James Spudich, Daniel Bernstein, Stanford Univ, Stanford, CA


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Single-Cell RNA Sequencing Reveals Pathways Dysregulation by a Nfatc1 Mutation in Patient-Specific Cardiomyocytes Derived From Inducible Pluripotent Stem Cells

Natalia S Torres, Karissa Wang, Enrique Coca, Andrew Carey, Univ of Utah, CVRTI, SLC, UT; Colin Maguire, Utah Ctr for Clinical & Translational Sciences, SLC, UT; Scott Cho, Martin Tristani-Firouzi, Univ of Utah, CVRTI, SLC, UT


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

Alexia Vite, Matthew A Caporizzo, University of Pennsylvania, Philadelphia, PA; Elise Corbin, Delaware Univ, Newark, DE; Kenneth Bedi, Christina Yingxian Chen, Benjamin L. Prosser, Kenneth B. Margulies, University of Pennsylvania, Philadelphia, PA


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Assessing the Efficacy of Novel RyR2 Inhibitor, EL20, in Induced Pluripotent Stem Cell Derived Cardiomyocytes from a Catecholaminergic Polymorphic Ventricular Tachycardia Patient

Tarsha A Word, Baylor Coll of Med, Houston, TX; Andrew Landstrom, Duke Univ Coll of Med, Durham, NC; Ann Quick, Mayra Shak, Christina Miyake, Baylor Coll of Med, Houston, TX; Hugh D Allen, Texas Children Hosp, Houston, TX; Xander Wehrens, Baylor Coll of Med, Houston, TX


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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

Francisco J Carrillo-salinas, Njabulo Ngwenyama, Marina Anastasiou, Kuljeet Kaur, Tufts Univ, Boston, MA; Mark Aronovitz, Tufts Medical Ctr, Boston, MA; Pilar Alcaide, Tufts Univ, Boston, MA


221
IkKe Deficiency Aggravates Cardiac Inflammation With Dysregulation of p52 and p38 in Myocardial Infarction

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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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X. Li: None. W. Yang: None. J. Wang: None.

224
Sub-cytotoxic Levels of Heavy Metals Induce Pro-inflammatory Signaling in the Aortic Endothelium without Impairing Flow-Mediated Dilatation in Rats

Pooneh Nabavizadeh, Sharina Ibrahim, Adam Fries, Jiangtao Liu, Ronak Derakhshandeh, Matthew L Springer, Univ of California San Francisco, San Francisco, CA


Evaluating Pro-Inflammatory and Pro-Resolving Lipid Modulations in an Oral 15-HETE Model of Pulmonary Hypertension
Ellen I O Connor, Gregoire Ruffenach, Victor Grijalva, David Meriwether, Jeremy Papesh, Nasrin Dorreh, Anna Dorfman, Mansoureh Eghbali, Srinivasa Reddy, UCLA, Los Angeles, CA

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Apoptotic Mimetic Peptide 6f Prevent Pulmonary Hypertension Induced by Oxidized Lipids
Gregoire Ruffenach, Ellen O'Connor, Mylene Vaillancourt, Shervin Saraji, Nancy Cao, Laila Aryan, Christine Cunningham, Victor Grijalva, Soban Umar, Srinivasa Reddy, Mansoureh Eghbali, Donya Moazeni, Univ of California, Los Angeles, CA

227
Intravitral Multiphoton Microscopy Reveals Increased Capacillary Patrolling by Leukocytes and Cardiomyocyte Dysfunction in High Fat Diet Induced Hypertrophy
David M Small, Nathanial H Allan-Rahill, Michael RE Lamont, Salomon Djakpa, Marvarakumari G Jhala, Yvette Zhu, Nozomi Nishimura, Cornell Univ, Ithaca, NY

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Spatiotemporal Dynamics of Macrophages in vitro and in vivo
Nika Taghdiri, Kenneth Mark Huang, Univ of California, San Diego, La Jolla, CA; Rainer H. Kohler, Ralph Weissleder, Massachusetts General Hosp, Harvard Medical Sch, Boston, MA; Kevin R King, Univ of California, San Diego, La Jolla, CA

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TWEAK-Fn14 Axis: A Potential Therapeutic Target for Treating Heart Failure
Sathyadev Unudruthi, Evelyn Thomas, Nehal Patel, Alexander Winkle, Daniel Gratz, Thomas Hund, The Ohio State Univ, Columbus, OH

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Disturbed Blood Flow-Induced Platelet Transmigration Via C-type Lectin-like Receptor-2 Modulating Vascular Inflammation
Chaojun Tang, Yulan Sheng, Tao You, Lei Wang, Zhanli Xie, Soochow Univ, Suzhou, China; Michael McDaniel, Lijun Xia, Oklahoma Medical Res Fndn, Oklahoma City, OK; Li Zhu, Soochow Univ, Suzhou, China

235
A Micropeptide Regulator of Voltage-gated Potassium Channels Controls Cardiac Rhythm
Kelly M Anderson, Xiaorang Parks, Purnithda Poosalu, Sean Lindley, Coeli Lopes, Douglas M Anderson, Univ of Rochester, Rochester, NY
245 PRMT7 Deficiency Exacerbates Cardiomyopathy Induced Doxorubicin in Ovariectomized Mice
Byeong-Yun Ahn, Myong-Ho Jeong, Jung-Hoon Pyun, Hana Cho, Jong-Sun Kang, SungKyunKwan University, Suwon, Korea, Republic of

246 Applying a Quantitative, Cell Surface Glycoproteomic Approach to Understanding the Role of Human Cardiac Fibroblasts in Advanced Heart Failure
Linda Berg Luecke, Amanda R Buchberger, Matthew Waas, Medical Coll of Wisconsin, Milwaukee, WI; Clausius Mahr, Univ of Washington, Seattle, WI; Rebekah L Gundry, Medical Coll of Wisconsin, Milwaukee, WI

247 Phagocytosis-mediated Activation of Smad3 in Macrophages Mediates Anti-inflammatory Transition and Protects From Adverse Post-infarction Remodeling
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B. Chen: None. S. Huang: None. Y. Su: None. J. Graff: None. N.G. Frangogiannis: None.

248 Microfibrillar-Associated Protein 4 Regulates Maladaptive Cardiac Remodeling
Lisa E Dorn, William Lawrence, Jennifer M Petrosino, Xianyao Xu, Thomas J Hund, Ohio State Univ, Columbus, OH; Anders Schlosser, Grith L Sorensen, Univ of Southern Denmark, Odense, Denmark; Federica Accornero, Ohio State Univ, Columbus, OH

249 ERBB2 and beta-1-Adrenergic Receptor Cross-talk Underlies Cardiac Dysfunction
Manveen K Gupta, Kate Stenson, Cleveland Clinic, Cleveland, OH; Kathleen Gabrielson, Johns Hopkins, Baltimore, MD; Sathyamangla V Naga Prasad, Sathyamangla V. Naga Prasad, Cleveland Clinic, Cleveland, OH

250 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
C.D. Humeres: None. A. Shinde: None. N.G. Frangogiannis: None.

251 Mitochondrial Calcium Uniporter Regulates Proliferative Activity of Cardiac Fibroblasts Under Angiotensin II Stimulation
Bong Sook Juhn, Yuta Suzuki, Michael W. Cypress, Univ of Minnesota, Minneapolis, MN; Peng Zhang, Ulrike Mende, Rhode Island Hosp and Brown Univ, Providence, Ri; Jin O-Uchi, Univ of Minnesota, Minneapolis, MN

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)
Brian Lee Lin, Sumita Mishra, Grace K Muller, Djahida Bedja, Guangshuo Zhu, Jinying Yang, Mark E Anderson, Johns Hopkins Univ, Baltimore, MD; Steve S Pullen, Boehringer Ingelheim Pharmaceuticals, Ridgefield, CT; David A Kass, Johns Hopkins Univ, Baltimore, MD

254 Kinase-dead PI3kδ Expression in the Cardiac Myocytes Regulates Fibroblast Signaling and Myofibroblast Differentiation
Maradumane L Mohan, Lisa M Grove, Anita Sahu, Robert S Papay, Mitchell A Olman, Cleveland Clinic Fdn, Cleveland, OH; Sathyamangla V Naga Prasad, Sathyamangla V. Naga Prasad, Cleveland Clinic, Cleveland, OH

255 Novel Role for Free Fatty Acid Receptor 4 in Response to Pathologic Pressure Overload-Induced Heart Failure in Mice
Katherine A Murphy, Sonal S Joshi, Chastity L Healy, Katherine M Ernste, Univ of Minnesota, Minneapolis, MN; Brian A Harsh, Pennsylvania State Univ, University Park, PA; Brandon M Wagner, Univ of Minnesota, Minneapolis, MN; Wei Huang, Brian C Jensen, Univ of North Carolina, Chapel Hill, NC; Gregory C Shearer, Pennsylvania State Univ, University Park, PA; Timothy D O’Connell, Univ of Minnesota, Minneapolis, MN
256 Cardiac Fibroblast-derived Exosomes Mediate Endothelial Dysfunction and Heart Failure
Prabhat Ranjan, Rajesh Kumar, Dept of Med, Div of Cardiovascular Disease, Univ of Alabama at Birmingham, Birmingham, AL; Prasanna Krishnamurthy, Dept of Biomedical Engineering, The Univ of Alabama at Birmingham, Birmingham, AL; Raj Kishore, Ctr for Translational Med, Temple Univ, Philadelphia, PA, Philadelphia, PA; Suresh K Verma, Dept of Med, Div of Cardiovascular Disease, Univ of Alabama at Birmingham, Birmingham, AL.

257 Cortical Bone Stem Cell-Derived Exosomes Alter Wound Healing Response in Cardiac Fibroblasts and Cardiac Endothelial Cells
Giana Schena, Hajime Kubo, Yijun Yang, Eric Feldsott, Giulia Borghetti, Deborah Eaton, Jaslyn Johnson, Remus Berretta, Sadia Mohsin, Steven Houser, Temple Univ, Philadelphia, PA

258 Elucidating Sex Differences in Stress-related Atrial Remodeling and AF Risk in a Mouse Model of Atrial Dysfunction
Kamila M Bledzka, Iyad H Manasreh, Walter J Koch, Jessica Grondolsky, Sarah M Schumacher, Cleveland Clinic, Cleveland, OH

259 Resistin Accelerates Fibroblast-Myofibroblast Differentiation and Induces Myocardial Fibrosis
Rajvir Singh, Ravinder K Kaundal, Baoyin Zhao, Rhbubh Bouchareb, Roger Hajjar, Djamel Lebeche, Icahn Sch of Med at Mount Sinai Hosp, New York, NY

260 The ER Unfolded Protein Response Effector, ATF6, Reduces Fibrosis and Moderates Activation of Cardiac Fibroblasts
Winston T Stauffer, Erik A Blackwood, Khalid Azizi, Haley N Stephens, San Diego State Univ, San Diego, CA; Shirin Doroudgar, Heidelberg Univ Hosp, Heidelberg, Germany; Christopher C Glembotski, San Diego State Univ, San Diego, CA

261 Excessive O-GlcNAcylation Causes Heart Failure
Mahaa Umaphathi, Oliortini Mesubi, Jon Granger, Qinchuan Wang, Yuejun Wu, Elizabeth Luczak, The Johns Hopkins Hosp, Baltimore, MD; Gerald Hart, Complex Carbohydrate Res Ctr, Athens, GA; Mark Anderson, The Johns Hopkins Hosp, Baltimore, MD

262 Gene Expression Profiling of Hypertrophic and Failing Cardiomyocytes Identifies New Players Involved in Heart Failure
Marta Vigil-Garcia, Charlotte J Demkes, Joep EC Eding, Danielle Vansteeg, Heather de Ruiter, Monika M Gladka, Hubrecht Inst, Utrecht, Netherlands; Magdalena Harakalova, Alex Bossu, Aryan Vink, Folkert W Asselbergs, Toon van Veen, Univ Medical Ctr Utrecht, Utrecht, Netherlands; Eva van Rooij, Hubrecht Inst, Utrecht, Netherlands

263 MYH14 Protects Against of Isoproterenol-induced Left Ventricular Hypertrophy and Fibrosis
Jessica J Wang, Sunny C Chang, Alex Tran, Jessica Sanchez, Max Yang, Kazuhiro Omi, UCLA, Los Angeles, CA

264 EPRS is a Critical Translational Control Factor in Cardiac Fibrosis
Jiayin Wu, Kadiam C Venkata Subbaiaah, Feng Jiang, Omar Hedaya, Peng Yao, Aab Cardiovascular Res Inst, Univ of Rochester Sch of Med and Dentistry, Rochester, NY

265 Thyrotoxic Pericarditis in a Mouse Model of Graves’ Disease
Fengyi Zhao, Liping Wu, Bingyin Shi, Xi’an Jiaotong Univ, Xi’an, China
F. Zhao: None. B. Shi: None.

266 Sex Differences in Anthracycline-Induced Cardiotoxicity in Young Mice
Marianne Grant, Beshay Zordoky, Univ of Minnesota, Minneapolis, MN
M. Grant: None. B. Zordoky: None.

267 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

270 Loss of S100A1 Protein Negatively Impacts Glucose Metabolism and Energy Homeostasis in Cardiomyocytes
Fadwa Abdalla, Andrea Schneider, Hugo A. Katus, Martin Busch, Patrick Most, Heidelberg university Hosp, Heidelberg, Germany

271 Reduced Expression of the Cardiac Sodium Channel Nav1.5 Triggers Enhanced Fatty Acid Metabolism and Oxidative Stress
Ryan L Boudreau, Xiaoming Zhang, Jared M McLendon, William Kutschke, Ethan J Anderson, Barry London, Univ of Iowa, Iowa City, IA
R. L. Boudreau: 2. Research Grant; Significant; NIH R01 funding for this project. X. Zhang: None. J. M. McLendon: None. W. Kutschke: None. E. J. Anderson: None. B. London: None.

272 Cardioprotective Effects of Plant-derived Fat in Low Carbohydrate Diet on the Progression of Heart Failure
Satoshi Bujo, Haruhiro Toko, Mutsumi Harada, Jiaxi Guo, Masato Ishizuka, Haruka Yanagisawa-Murakami, Issei Komuro, Dept of Cardiovascular Med, Graduate Sch of Med, The Univ of Tokyo, Tokyo, Japan
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273
The Role of Estrogen in Protection of Skeletal Muscle Function in Diastolic Dysfunction
Somik Chatterjee, Shumin Li, Ajin Zhang, Indira Vedula, Judy A. AllRukby, Dale J. Hamilton, Anisha A. Gupte, Houston Methodist Res Inst, Houston, TX
S. Chatterjee: None. S. Li: None. A. Zhang: None. I. Vedula: None. J.A. AllRukby: None. D.J. Hamilton: None. A.A. Gupte: None.

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Mitochondrial Translation Machinery Defects Causes Cardiomyopathy and in vivo Functional Screening of Therapeutic Targets
Feng Gao, Tian Liang, Peng Zhang, Ning Liu, Xuyang Fu, Xiaoxuan Dong, Zhejiang Univ, Hangzhou, China; Da-zi Wang, Boston Children’s Hosp, Boston, MA; Jinghai Chen, Zhejiang Univ, Hangzhou, China

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Modulation of Energy Metabolism by Metformin Prevents Diet Induced Cardiac Dysfunction in a Mouse Model of Adult Congenital Heart Disease
Raghav Pandey, The Jackson Lab, Bar Harbor, ME; Julia C Wilmanns, Hannover Medical Sch, Hannover, Germany; Olivia Nadia A. Rosenthal, Milena B. Furtado, Mauro W Costa, The Jackson Lab, Bar Harbor, ME

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Maternal High Fat, High Sucrose Diet-induced Cardiomyopathy Abnormalities in the Offspring are Transmitted via the Oocyte Nucleus
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Neonatal Cardiomyocyte-Released Signaling Protein Reduces Adipocyte Differentiation
Kenneth S Gresham, Walter J Koch, Temple Univ Lewis Katz Sch, Philadelphia, PA
K.S. Gresham: None. W.J. Koch: None.

278
Reduced HtrA2 Protein Levels in Mitochondria but Elevated Levels in Cytosol of Left Ventricular Myocardium of Dogs with Chronic Heart Failure
Ramesh C Gupta, Vinita Singh-Gupta, Hani N Sabbath, Henry Ford Hosp, Detroit, MI
R.C. Gupta: None. V. Singh-Gupta: None. H.N. Sabbath: None.

279
Increased Drp1 Acetylation Mediates Lipid Overload-induced Cardiomyocyte Death & Heart Dysfunction
Qingxun Hu, Huiliang Zhang, Nicolas Gutierrez Cortes, Dan Wu, Pei Wang, Eric Smith, Mitochondria and Metabolism Ctr, Dept of Anesthesiology and Pain Med, Univ of Washington, Seattle, WA; Mingyi Wang, Lab of Cardiovascular Sciences, Natl Inst on Aging, Natl Insts of Health Biomedical Res Ctr (BRC), Baltimore, MD; Shy-Shing Sheu, Ctr for Translational Med, Dept of Med, Sidney Kimmel Medical Coll, Thomas Jefferson Univ, Philadelphia, PA; Wang Wang, Mitochondria and Metabolism Ctr, Dept of Anesthesiology and Pain Med, Univ of Washington, Seattle, WA

280
The Effect of YAP/TAZ on Glycolysis and Mitochondrial Oxidative Phosphorylation in Cardiomyocytes
Toshihide Kashihara, Junichi Sadoshima, Rutgers-New Jersey Medical Sch, Newark, NJ
T. Kashihara: None. J. Sadoshima: None.

281
Single Cell Analysis of Postnatal Heart Development and Disease
J. Zhao: None. K. Lupino: None. L. Pei: None.

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Mitochondrial Complex I Induced Myocardial Stunning Following Cardiopulmonary Resuscitation
Lin Piao, Yonghu Fang, Robert B Hamanaka, Gokhan M Mutlu, Univ of Chicago, Chicago, IL; Cameron Dezfulian, Univ of Pittsburgh, Pittsburgh, PA; Stephen L Archer, Queen's Univ, Kingston, ON, Canada; Willard W Sharp, Univ of Chicago, Chicago, IL

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Drp1 Protects the Heart Against High Fat Diet-Induced Diabetic Cardiomyopathy
Mingming Tong, Peiyong Zhai, Wataru Mizushima, Junichi Sadoshima, Rutgers-NJMS, Newark, NJ
M. Tong: None. P. Zhai: None. W. Mizushima: None. J. Sadoshima: None.

285
Oxidized Low Density Lipoprotein and Angiotensin II Causes Vascular Senescence Via AT1R Signal-mediate Mitochondrial Fission
Yoshihiro Uchikado, Yoshiyuki Ikeda, Yuichi Sasaki, Yuichi Akasaki, Mitsuru Ohishi, Kagoshima Univ, Kagoshima, Japan

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Smyd1 is Required for Cell Survival During Glucose Deprivation
Amira Sabry, Kelko Cawley, Katie Sciuto, Amanda Horiuichi, David Nix, Chris Stubborn, Yukio Sajioh, Alexey V Zaitsev, Junco S Warren, Univ of Utah, Salt Lake Cty, UT

287
Altered Mitochondrial Flash Activity and mPTP Opening in the Aged Heart Are Reversed by Elamipretide Treatment
Huiliang Zhang, Univ of Washington, Seattle, WA; Hazel Szeto, Burke Medical Res Inst, White Plains, NY; Nathan Alder, Univ of Connecticut, Storrs, CT; Peter S Rabinovitch, Univ of Washington, Seattle, WA

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Mitochondrial Network in Pressure Overload Heart Failure
Jiajing Song, Seulhee Kim, Mary N Latimer, Kahi Yong Goh, Sumanth D Prabhu, Gangqian Jin, Victor Darley-Usmar, Xiaoguang Liu, Adam R Wende, Martin E Young, Lufang Zhou, Univ of Alabama Birmingham, Birmingham, AL.

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Neddylation is Essential for Cardiomyocyte Metabolite Maturation in the Developing Heart
Jianqu Zou, Jie Li, Rodney Littlejohn, Yai Yao, Kunzhe Dong, Jiliang Zhou, Weiqin Chen, Huabo Su, Augusta Univ, Augusta, GA.

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Lpp3 Deficiency Impairs Mitochondrial Function And Enhances Myocardial Lpa Mediated Signaling
Sumitra Miriyala, Manikannd Panchatcharam, Md.Shenuarin Bhuiyan, Diana Escalante Alcalde, Kevin McCarthy, Christopher Kevil, LSUHSC-SHREVEPORT, Shreveport, LA.

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Cysteine 202 of Cyclophillin D is a Site of Multiple Post-translational Modifications and Plays a Role in Cardioprotection
Georgios Amanakis, Junhui Sun, Natl Insts of Health, Rockville, MD; Matthew Brody, Cincinnati Children's Hosp, Cincinnati, OH; Tyler Bauer, Shane McGinty, Jennifer Boylston, Chengyu Liu, Natl Insts of Health, Rockville, MD; Jeffery Molkentin, Cincinnati Children's Hosp, Cincinnati, OH; Elizabeth Murphy, Natl Insts of Health, Rockville, MD.

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B7-33, a Functionally Selective Relaxin Receptor 1 Agonist, Exerts Protective Effects Against Myocardial Ischemia-Reperfusion Injury in Mice
Teja Devarakonda, Adolfo G Mauro, Geronimo Guzman, Chad Cain, Arindita Das, Virginia Commonwealth Univ, Richmond, VA; Praveen Praveen, MA Hosain, Univ of Melbourne, Melbourne, Australia; Fadi N Salloum, Virginia Commonwealth Univ, Richmond, VA.

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Therapeutic Effects of SK Channel Activator on Cardioprotection in the Setting of Cardiopligic Ischemia-Reperfusion and Cardiopulmonary Bypass
Zhiqui Zhang, Neel R Sodha, Vasile Pavlov, Ahmad Aboulhej, Richard Clements, Martin A Kolodziejczak, Frank W Sellke, Jun Feng, Rhode Island Hosp, Providence, RI.

298
Downregulation of Delta and Kappa Opioid Receptors in Post-heart Transplantation in Human and Rats
Mebratu A Gebrie, Alessio Rungatscher, Daniele Linardi, Anna Andrioli, Sajeeva Ahmed, Naseer Ahmed, Mahmoud Ismail, Alberto Forni, Maddalena Tessari, Livio San Biagio, Alessandro Soave, Elizabetta Milani, Giulio Innornaroti, Giovanni B Luciani, Giuseppe Faggian, Univ of Verona, Verona, Italy.

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Engineering Rodent TRPV1 to Mimic Chicken TRPV1 Reduces Capsaicin-induced Calcium Influx in H9C2 Cells
S. He: None. P. Sinharoy: None. E. Gross: None.

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Ischemia and Reperfusion Injury Following Cardioplegic Arrest is Attenuated by Age and Testosterone Deficiency in Male but Not Female Mice
Anjali Ghimire, Elise S Bisset, Susan E Howlett, Dalhousie Univ, Halifax, NS, Canada.
A. Ghimire: None. E.S. Bisset: None. S.E. Howlett: B. Consultant/ Advisory Board; Significant; Consult for DGI Clinical.

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Bone Marrow Niche-Mediates Cardiac Repair is Associated With Adiponectin in Retnla Deficiency
Yong Sook Kim, Hye-yun Jeong, Hye-jin Kang, Mi Ra Kim, Youngkeun Ahn, Chonnam Nat Univ Hosp, Gwangju, Korea, Republic of

302
Role of Acidic pH in Linking SIRT1 and Cardioprotective Metabolism
Chaitanya A Kulkarni, Alexander S Milliken, Paul S Brookes, Univ of Rochester Medical Ctr, Rochester, NY.

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Exercise-induced Autophagy and NADPH Oxidase 2 Downregulation Prevents Cardiotoxicity Induced by Doxorubicin
Youngill Lee, Univ of West Florida, Pensacola, FL; Insu Kwon, Hanyang Univ, Seoul, Korea, Republic of; Yongchul Jang, Ludmila Cosio-Lima, Univ of West Florida, Pensacola, FL.

304
Pgc1a Activation by Pterostilbene Ameliorates Acute Doxorubicin Cardiotoxicity via Reducing Mitochondrial Oxidative Stress Through Enhancing Ampk and Sirt1 Cascades
Dong Liu, Shubin Qiao, Jianhong Yuan, Fujai Hosp, Beijing, China.
D. Liu: None. S. Qiao: None. J. Yuan: None.
306
DJ-1 Preserves Mitochondrial Function in the Ischemic Heart by Reducing the Glycation of Complex I
Yvanna Panter, Emory Univ, Atlanta, GA; Yuuki Shimizu, Nagoya Univ Graduate Sch of Med, Nagoya, Japan; Rohini Polavarapu, Jian Li, Li-Hsien Chin, John Calvert, Emory Univ, Atlanta, GA

307
Chemogenetic Activation of Paraventricular Oxytocin Neurons Reduces Cardiac Dysfunction During Heart Failure
Jeannette Rodriguez Gonzalez, Janshi Dyavanapalli, Carla Rocha, Mary Kate Dywer, John Schloen, Kathryn J Schunke, David M Mendelowitz, Matthew W Kay, The George Washington Univ, Washington, DC

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Role of Snf1-related Kinase as a Regulator of Chromatin Modifications and DNA-damage Response in Heart Injury
Paulina J Stanczyk, Zachary Zilber, Adam de Jesus, Hsiang-Chun Chang, Hossein Ardabili, Northwestern Univ, Chicago, IL

309
Cardioprotective Effect of Canstatin Against Myocardial Infarction in Rats
Akikira Sugiyama, Rumi Ito, Muneyoshi Okada, Hideyuki Yamawaki, Sch of Veterinary Med, Kitasato Univ, Towada, Aomori, Japan
A. Sugiyama: 2. Research Grant; Significant; JSPS KAKENHI Grant Number 18J20623. R. Ito: None. M. Okada: None. H. Yamawaki: None.

310
Time-Dependent Changes in Myocardial Edema Overestimate the Ischemic Area-at-Risk Up to One Week After Reperfused Myocardial Infarction in Swine
Brian R Weil, George Techiryan, John M Canty Jr., Univ at Buffalo, Buffalo, NY

311
Signal Transducer and Activator of Transcription 3 Inhibits the Opening of Mitochondrial Calcium Unipporter Against Cardiac Ischemia/reperfusion in Hydrogen Peroxide Postconditioning
Lan Wu, Shanghai Univ of Med & Health Sciences, Shanghai, China; Ji-liang Tan, Zhong-yan Chen, Shanghai Insts for Biological Sciences, Chinese Acad of Sciences, Shanghai, China; Gang Huang, Shanghai Univ of Med & Health Sciences, Shanghai, China
L. Wu: None. J. Tan: None. Z. Chen: None. G. Huang: None.

312
SGLT1 is Essential for Cardioprotection During Ischemia-Reperfusion Injury via Enhanced Glucose Utilization in Diet-induced Obese Mice
Akira Yoshii, Nagoshi Tomohisa, Yuuake Kashiwagi, Haruka Kimura, Yoshio Tanaka, Yuhei Oi, Keichi Ito, Takuya Yoshino, Toshikazu D Tanaka, Michihiro Yoshimura, Jikei Univ Sch of Med, Tokyo, Japan

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Inhibition of Resistin Protects against Heart Failure Injury by Targeting Gadd45α
Baoyin Zhao, Djamel Lebeche, Icahn Sch of Med at Mount Sinai, New York, NY
B. Zhao: None. D. Lebeche: None.

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MicroRNA-133a Attenuates the Development of Thoracic Aortic Aneurysm
Adam W Akerman, Elizabeth N Collins, Jessica K Harrison, Joyce Oh, Lauren B Collins, Jessica Riopredre, Amari DeVauhgh, Charles M Raybuck, John S Ikonomidis, UNC-Chapel Hill, Chapel Hill, NC

321
Novel Long Non Coding RNAs Involved in Pitx2>Wnt>microRNA Signaling Pathways Leading to Atrial Fibrillation
Diego Franco, Carlos Garcia-Padilla, Amelia E Aranega, Univ of Jaen, Jaen, Spain
D. Franco: None. C. Garcia-Padilla: None. A.E. Aranega: None.

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A Novel Human Specific Long Noncoding RNA PG1 Controls Human Cardiogenesis via Regulating Beta-catenin Activity
Lei Han, Indiana Univ, Indianapolis, IN; Yang Li, Univ of Pittsburgh, Pittsburgh, PA; Lei Yang, Indiana Univ, Indianapolis, IN
L. Han: None. Y. Li: None. L. Yang: None.

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Translation Determines the Acute Cardiac Response to Ischemia/Reperfusion
Christoph Hofmann, Ferestheh S Younesi, Ole M Schwerdt, Etienne Bioleau, Hugo A Katus, Christoph Dieterich, Mirko Völkers, Univsklinikum Heidelberg, Heidelberg, Germany

325
Characterization of Circular RNAs in Vascular Smooth Muscle Cells With Vascular Calcification
Hyun Kook, Juhee Ryu, Geon Jeong, Yeong-Hwan Lim, Duk-Hwa Kwon, Naekwon Che, Sara Shin, Chonnam Natl Univ Med Sch, Hwasun, Korea, Republic of; Yongsook Kim, Youngkeun Ahn, Chonnam Natl Univ Hosp, Kwangju, Korea, Republic of; Young-Ko Kim, Chonnam Natl Univ Med Sch, Hwasun, Korea, Republic of
ABSTRACTS

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


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MicroRNA-574-5p1210A Axis Maintains Mitochondrial Translational Homeostasis and Influences Pathological Cardiac Remodeling
Peng Yao, Jiabing Wu, Kadam C. Venkata Subbaiah, Feng Jiang, Omar Hedaya, Univ of Rochester RMD, Rochester, NY; Wei Hong Wilson Tang, Cleveland Clinic, Cleveland, OH; Eric Small, Chen Yan, Univ of Rochester RMD, Rochester, NY


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A HaloTag-TEV Genetic Cassette for Mechanically Probing Native Titin
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331

Loss of Myosin Binding Protein H-Like Causes Cardiac Conduction Abnormalities
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Pharmacologic Characterization of the Cardiac Myosin Inhibitor, CK-3773274: A Potential Therapeutic Approach for Hypertrophic Cardiomyopathy

D.T. Hwee: 1. Employment; Significant; $10,000 or more during last 12 months.. 7. Ownership Interest; Modest; Equity position. J.J. Hartman: 1. Employment; Significant; $10,000 or more during last 12 months.. 7. Ownership Interest; Modest; Equity position.

333

Cardiomyocyte Hypercontractility is an Adaptational Response to Stiffness in High-Fat Diet Mice
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334

Cardiac Myosin Binding Protein C Phosphorylation Regulates Calcium Homeostasis
Mohit Kumar, Kobra Haghhi, Evangelia Kranias, Sahithvel Sadayappan, Univ of Cincinnati, Cincinnati, OH

M. Kumar: None. K. Haghhi: None. E. Kranias: 3. Other Research Support; Significant; LEDUC Foundation Grant. S. Sadayappan: 2. Research Grant; Significant; R01 HL130356, R05 HL109680, R01 AR067279, R01 HL106826.

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Titin Truncations in Human Heart Tissue
Quentin McAfee, Jeff Brandimarto, Joshua Rhoades, Ken Bede, Kenneth Margulies, Zoltan Arany, Univ of Pennsylvania, Philadelphia, PA

Q. McAfee: None. J. Brandimarto: None. J. Rhoades: None. K. Bede: None. K. Margulies: None. Z. Arany: None.

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The Effect Of Phosphodiesterase 9a Inhibition In 2 Mouse Models Of Diastolic Dysfunction
Mei Methawasin 85724, Josh Strom, Zaynab Hourani, John E. Smith III, Henk L. Granzier, Univ of Arizona, Tucson, AZ

M. Methawasin: None. J. Strom: None. Z. Hourani: None. J.E. Smith: None. H.L. Granzier: None.

337

Cell-Substrate Adhesion Regulates Early Steps of Myofibrillogenesis in Human Cardiomyocytes
Abigail C Neininger, Nilay Taneja, Dylan T Burnette, Vanderbilt Univ, Nashville, TN


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Motivating Myosin: 2 deoxy-ATP Induced Structural Alterations That Increase Myosin Activity
Michael Regnier, Univ of Washington, Seattle, WA

M. Regnier: None.
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Biomechanics and Calcium Handling of Thin Filament Hypertrophic Cardiomyopathy Variants
Giuliana G Repetti, Christopher N Toepfer, Amanda C Garfinkel, Harvard Medical Sch, Boston, MA; Gabriela Venturini, Univ of Sào Paulo, Sào Paulo, Brazil; Jonathan G Seidman, Christine E Seidman, Harvard Medical Sch, Boston, MA

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Myosin Regulatory Light Chain: A Major Player in Defining the ‘OFF’ State of Cardiac Myosin
Na Sa, Ivan Tomasic, Sampath Gollapudi, Sunman Nag, Myokardia, S San Fran, CA
N. Sa: None. I. Tomasic: None. S. Gollapudi: None. S. Nag: None.

341
Efficient Large-scale Sarcomere Tracking (sarctrack) to Assess HCM Variants in iPSC-CMs
Christopher Toepfer, HMS and Oxford, Boston, MA; Arun Sharma, Amanda Garfinkel, Marcelo Cicconet, Radhika Agarwal, HMS, Boston, MA; Anant Chopra, Christopher Chen, BU, Boston, MA; Jonathan Seidman, Christine Seidman, HMS, Boston, MA

345
AAV1.SERCA2a Gene Therapy as a Novel Targeting Approach Against Pulmonary Fibrosis
Malik Bissierer, Mount Sinai, New York, NY
M. Bissierer: None.

346
Tuberin S1365 Phosphorylation Regulates Mechanistic Target of Rapamycin Complex 1 (mTORC1) Pathological Signaling While Sustaining Metabolic Sensor Function
Brittany L Dunkerly-Eyring, Miguel P Vera, Christian U Oeing, Mark J Ranek, David A Kass, Johns Hopkins Univ, Baltimore, MD

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Homeobox A4 Suppresses Vascular Smooth Muscle Cell Phenotypic Switching as a Novel Regulator of YAP/TEAD Transcriptional Activity
Masahiro Kimura, Takahiro Horie, Takeshi Kimura, Koh Ono, Dept of Cardiovascular Med, Graduate Sch of Med, Kyoto Univ, Kyoto, Japan

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Becn1 as a Critical Regulator of the Endosomal Degradation Pathway
Mark Lampert, UCSD, La Jolla, CA
M. Lampert: None.

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Bcl-xL-Ser14 Phosphorylation is Critical for Compensatory Cardiac Hypertrophy
Michinari Nakamura, Nadezhda Fefelova, Tong Liu, Shohei Ikeda, Peyong Zhai, Dominic P. Del Re, Hong Li, Lai-Hua Xie, Junichi Sadoshima, Rutgers New Jersey Medical Sch, Newark, NJ

351
Suppression of Store Operated Ca2+ Entry Components, dStim and dOrai, Results in Dilated Cardiomyopathy
Courtney Petersen, Jeremy T. Smyth, Uniformed Services Univ of the Health Sciences, Bethesda, MD; Matthew J. Wolf, Univ of Virginia Sch of Med, Charlottesville, VA

352
Release of 12,13-diHOME From Brown Adipose Tissue Modulates Inotropy and Lusitropy in Old Mice
Vikram Shettigar, Eaman Abay, Kelsey Pinckard, Lisa A Baer, Kristin I Stanford, Mark T Ziolo, Ohio State Univ, Columbus, OH

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Distinct cGMP Compartmentalization by Membrane Guanylate Cyclases
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H. Subramanian: None. A. Froese: None. V. Nikolaev: None.

354
Golgi Localized β-, adrenergic Receptors Stimulate Golgi PI4P Hydrolysis by PLCζ to Regulate Cardiac Hypertrophy
Wenhui Wei, Craig A Nash, Univ of Michigan, Ann Arbor, MI; Roshanak Irannejad, Univ of California, San Francisco, CA; Alan V Smrcka, Univ of Michigan, Ann Arbor, MI
W. Wei: None. C.A. Nash: None. R. Irannejad: None. A.V. Smrcka: None.

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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 Oncometastatic Stress

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362 Live Tracking Mouse Model for Endogenous Exosomes from Heart

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W. Luo: None. Y. Dai: None. J. Chang: None.

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

Masahiro Nishi, Takehiro Ogata, Nachiko Nakanishi, Yusuke Higuchi, Akira Sakamoto, Yumika Tsuji, Satoaki Matoba, Kyoto Prefectural Univ of Med, Kyoto, Japan

M. Nishi: None. T. Ogata: None. N. Nakanishi: None. Y. Higuchi: None. A. Sakamoto: None. Y. Tsuji: None. S. Matoba: None.

364 Klotho Gene Deficiency Causes Heart Failure via Disruption of Phosphate Metabolism

Kai Chen, Zhongjie Sun, Univ of Tennessee HSC, Memphis, TN

K. Chen: None. Z. Sun: None.

365 Reducing Lumen Disorder in Cerebral Arteriovenous Malformation

Jiayi Yao, Xiuju Wu, Daqing Zhang, Li Zhang, Kristina I Bostrom, Yucheng Yao, UCLA, Los Angeles, CA


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

Chukwuemeka George Anene Nzelu, Wilson Tan, Eleanor Wong, Mick Lee, Matthias Ilmari Autio, Susan Tan, Pan Bangfen, Natl Univ of Singapore, Singapore, Singapore; Michael Morley, Kenneth Margulies, Thomas Cappolla, Univ of Pennsylvania, Philadelphia, PA; Marie Loh, John Chambers, Nanyang Technological Univ, Singapore, Singapore; Shyam Prabhakar, Genome Inst of Singapore, Singapore, Singapore; Roger Foo, Natl Univ of Singapore, Singapore, Singapore


369 Epigenetic Regulation of Cardiomyocyte Proliferation and Regeneration by Svi1/sorf Complex Subunit Arid1a

Cornelis J Boogerd, Ilaria Perini, Phil La, Britt van der Swaan, Jari B Berkhourt, Lieneke Kooijman, Hubrecht Inst, Utrecht, Netherlands; Danielle Versteeg, Univ Medical Ctr Utrecht, Utrecht, Netherlands; Eva van Rooij, Hubrecht Inst, Utrecht, Netherlands

C.J. Boogerd: None. I. Perini: None. P. La: None. B. van der Swaan: None. J.B. Berkhourt: None. L. Kooijman: None. D. Versteeg: None. E. van Rooij: None.

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

Wuming Gong, Bhairab N Singh, Satyabrata Das, Mary G Garry, Daniel J Garry, Univ of Minnesota, Minneapolis, MN

W. Garry: 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

Salma M. Awad, Eara Zahid, King Faisal Specialist Hosp & Res Ctr, Riyadh, Saudi Arabia; Sarah Al-Shalan, Coll of Science, Al-Faisal Univ, Riyadh, Saudi Arabia; Ayodele Alaiya, King Faisal Specialist Hosp and Res Ctr, Riyadh, Saudi Arabia; Qamar Al-Tinawi, Amar Al-Sheikh, Al-Faisal Univ, Riyadh, Saudi Arabia; Muhammed Kunhi, Kamar Al-Haffar, Jehad Al-Buraiki, Atti Eyjolsson, King Faisal Specialist Hosp and Res Ctr, Riyadh, Saudi Arabia; Waleed Al-Habib, King Saud Univ, Riyadh, Saudi Arabia; Coralie I Poizat, Masonic Medical Res Inst, Utica, NY


372 CRISPR-based Gene Activation for Transcriptional Reprogramming of Mammalian Cardiomyocytes

Eric Schoger, Univ of Goettingen, Goettingen, Germany; Kelli J Carroll, John McAnally, Wei Tan, UT Southwestern, Dallas, TX; Norman Liao, Lavanya M Iyer, Claudia Noack, Wolfram H Zimmermann, Univ of Goettingen, Goettingen, Germany; Rhonda Bassel-Duby, UT Southwestern, Dallas, TX; Laura C Zelarayan, Univ of Goettingen, Goettingen, Germany


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

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K.J. Schunke: None. R.V. Shoet: None.

374 Etv2 Transcriptionally Regulates Yes1 and Promotes Cell Proliferation During Embryogenesis

Bhairab Singh, Wuming Gong, Satyabrata Das, Joshua Theisen, Javier Sierra-Pagan, Demetris Yannopoulos, Erik Skie, Pruthvi Shah, Mary Garry, Daniel Garry, Univ of Minnesota, Minneapolis, MN

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Acetyl-CoA Production by Specific Metabolites Promotes Cardiac Repair After Myocardial Infarction via Mediating Histone Acetylation
I. Tang, Shuo Tian, Wenzin Gao, Zhong Wang, Univ of Michigan, Ann Arbor, MI
I. Lei: None. S. Tian: None. W. Gao: None. Z. Wang: None.

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KLF15-TCF7L2-dependent Cardiac Transcriptional Reprogramming Induces Cardiomyocyte and Vascular Cell Remodeling in the Mammalian Heart
Claudia Noack, Lavanya Iyer, Norman Liaw, Eric Schoger, Eva Wagner, Univ of Goettingen, Goettingen, Germany; Kerstin Zuehlke, Enno Klussmann, Max Delbrück Ctr for Molecular Med, Berlin, Germany; Wolfram-Hubertus Zimmermann, Laura C Zelarayan, Univ of Goettingen, Goettingen, Germany

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Enhanced Neovascularization by ETβ2 via Angiogenesis in Myocardial Infarction Models
Seong-Ho Bae, Sangho Lee, Sangsung Kim, Young-sup Yoon, Emory Univ, Atlanta, GA
S. Bae: None. S. Lee: None. S. Kim: None. Y. Yoon: None.

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Polyploidy Increases in Murine Cardiomyocytes Following Myocardial Infarction
Kathleen M Broughton, David Ebeid, Carolina Esquer, Bingyan Wang, Maryam Moshref, Mark Sussman, San Diego State Univ, San Diego, CA

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

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CX3CR1* Multipotent Progenitors Generate Cardiac Lineage Cells Under Cardiac Microenvironments
Kyung Cho, Mark Andrade, Seongho Bae, Emory Univ, Atlanta, GA; Sangsung Kim, Yongse Univ, Seoul, Korea, Republic of; Ji Enyun Kim, Young-sup Yoon, Emory Univ, Atlanta, GA

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Deterministic Paracrine Repair of Injured Myocardium using Microfluidic Cocooning of Heart Explant-Derived Cells
Puspinder Kanda, Univ Ottawa Heart Inst, Ottawa, ON, Canada; Ainara Benavente-Babace, Michel Godin, Univ Ottawa, Ottawa, ON, Canada; Darryl Raymond Davis, Univ Ottawa Heart Inst, Ottawa, ON, Canada

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Functional Maturation of Human iPSC-Derived Cardiomyocytes by Prolonged 3D Culture in Engineered Cardiac Tissue Constructs
Willem J De Lange, Stanford D Mitchell, Caroline D Kreitzer, Emily T Farrell, Ying Ge, J Carter Ralphe, Univ of Wisconsin, Madison, WI

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Plasminogen Regulates Mesenchymal Stem Cell-mediated Tissue Repair After Ischemia Through Cry61
Hao Duan, Zhangqiang He, Alan Mitteer, Hyun-Jun Kim, Eujung Yeo, Hongyu Han, Ling Qin, Yi Fan, Yanqing A Gong, Univ of Pennsylvania, Philadelphia, PA
H. Duan: None. Z. He: None. A. Mitteer: None. H. Kim: None. E. Yeo: None. H. Han: None. L. Qin: None. Y. Fan: None. Y.A. Gong: None.

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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 Rehan, Dawood Darbar, Univ of Illinois at Chicago, IL

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MIR148a Family Regulates Cardiac Differentiation of Human Embryonic Stem Cells by Inhibiting The Diff-mediated Notch Signaling Pathway
Shumei Miao, Xing Fang, You Yu, Xinglong Han, Hongchun Wu, Zhen-Ao Zhao, Soochow Univ, Suzhou, China; Yongming Wang, Fudan Univ, Shanghai, China; Wei Lei, Shijun Hu, Soochow Univ, Suzhou, China
S. Miao: None. X. Fang: None. Y. Yu: None. X. Han: None. H. Wu: None. Z. Zhao: None. Y. Wang: None. W. Lei: None. S. Hu: None.

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Regulation of Cardiomyocyte Maturation by an RNA Splicing Regulator Rbfox1
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S. Miao: None. X. Fang: None. Y. Yu: None. X. Han: None. H. Wu: None. Z. Zhao: None. Y. Wang: None. W. Lei: None. S. Hu: None.

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
Farwah Iqbal, Univ of Toronto Canada, Toronto, ON, Canada; Alexander Johnston, Poonam Mander, Brandon Wyse, Create Fertility Ctr, Toronto, ON, Canada; Jun Wu, Ren-Ke Li, Toronto General Res Inst, Toronto, ON, Canada; Peter Szaraz, Create Fertility Ctr, Toronto, ON, Canada; Clifford Librach, Create Fertility Ctr, Univ of Toronto, Toronto, ON, Canada

Surface Engineering Strategies to Study Diseases of Heart and Skeletal Muscle
Aditi Jain, Venkatraman Ravi, Jafar Hasan, Manisha Behera, Kaushik Chatterjee, Nagalingam Ravi Sundareshan, Indian Inst of Science, Bangalore, India

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
Irfan Khan, Syeda Roohina Ali, Asmat Salim, Dr. Pajnwani Ctr for Molecular Med and Drug Res, ICBBS, Univ of Karachi, Karachi, Pakistan
I. Khan: None. S.R. Ali: None. A. Salim: None.

Adipose-derived Stem Cells With Thymosin Beta 4 Enhanced Neovascularization in Mouse Ischemic Hind Limb Model
Jong-ho Kim, I-Rang Lim, Korea Univ Coll of Med, Seoul, Korea, Republic of; Hyung Joon Joo, Soon Jun Hong, Korea Univ Anam Hosp, Seoul, Korea, Republic of
J. Kim: None. I. Lim: None. H. Joo: None. S. Hong: None.

Postnatal Cardiac Tissue Harbors Progenitor Cells With Unique Metabolic Profile
Justin Kurian, Antonia Yuko, Kelsey Busch, Daria Harlamova, Nicole Kasatkina, Temple Univ Sch of Med -Ctr for Metabolic Disease Res, Philadelphia, PA; Marcus Wagner, Sadia Mohsin, Steven Houser, Temple Univ Sch of Med -Cardiovascular Res Ctr, Philadelphia, PA; Hong Wang, Mohsin Khan, Temple Univ Sch of Med -Ctr for Metabolic Disease Res, Philadelphia, PA

Electrical Stimulation of Pediatric Cardiac-derived c-kit+ Progenitor Cells Improves Retention and Cardiac Function in Right Ventricular Failure
Joshua T. Maxwell, David Trac, Ming Shen, Milton Brown, Michael E. Davis, Carly Zaladonis, Emily Baker, Martin L. Li, Daniel I. Jacobs, Emory Univ, Atlanta, GA

Approach of mRNA Delivery by Using Nanoparticles to Recover Endocardial Notch Signaling
Victoria L. Messerschmidt, Anettea Kuriakose, Kyту Nguyen, Juhyun Lee, Univ of Texas at Arlington, Arlington, TX

A 3D iPSC-derived Scaffold-Assisted Microfluidic Model of Ventricular Ejection
Christos Michas, Boston Univ, Boston, MA; Pranjal Nautiyal, Arvind Agarwal, Florida Intl Univ, Miami, FL; Alice E White, Christopher S Chen, Boston Univ, Boston, MA
C. Michas: None. P. Nautiyal: None. A. Agarwal: None. A.E. White: None. C.S. Chen: None.

Ready-made Microvessels Robustly Integrate Into the Infarcted Coronary Vasculature Promoting Graft Perfusion, Enhancing Cardiac Remuscularization and Function
Sara Nunes Vasconcelos, Xue Tao Sun, Jun Wu, Ren-Ke Li, Univ Health Network, Toronto, ON, Canada
S. Nunes Vasconcelos: None. X. Sun: None. J. Wu: None. R. Li: None.

Beneficial Effects of scaRNA Modulated Human iPSC-derived Cardiomyocytes Exposed Under Hypoxic Conditions
Sheeja Rajasingh, Vinodh Sigamani, Andras Czirok, Dona Greta Isai, Vijay Selvam, Johnson Rajasingh, Univ of Kansas Medical Ctr, Kansas City, KS
S. Rajasingh: None. V. Sigamani: None. A. Czirok: None. D.G. Isai: None. V. Selvam: None. J. Rajasingh: None.

N-sitrosylation Promotes Cell Cycle, Cell Viability and Proliferation by Activating the Snail/Slug Pathway in miPSC-derived CM
Alessandro Salerno, Amarylis Wanschel, Konstantinos Hatzistergos, Raul Dulce, Wayne Balkan, Joshua Hare, Univ of Miami, Miami, FL

Organ-on-chip Model for Investigating Autonomic Innervation of the Cardiac Microenvironment
Jonathan R Soucy, Tiss Torregrosa, Sanjin Hosic, Sebastian Moreno Arteaga, Abigail N Koppes, Ryan A Koppes, Northeastern University, Boston, MA

Placental Cdx2 Cells Regenerate Injured Myocardium
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Cardiomyocyte Maturation and Multinucleation in Postnatal Swine
Nivedhitha Velayutham, Christina M Alifieri, Emma J Agnew,
Kyle W Riggs, Richard S Baker, Farhan Zafar, Katherine E Yutzey,
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Postnatal Resetting of Cardiomyocytes Toward Ground State as a
Principal Step in Heart Maturation
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Bingying Zhou, Fujiw Hosp, Chinese Acad of Medical Sciences,
Beijing, China
L. Wang: None. Z. Li: None. F. Yao: None. P. Yu: None. D. Li: None. Z. Ren: None. B. Zhou: None.

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Role of MLF1 in Cardiomyocyte Cell Cycle Regulation
Feng Xiao, Jainty Salava, Alisson Campos Cardoso, Ana Macedo
Periera, Shalini Muralidhar, Diana Canseco, Hesham A Sadek, UT
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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.

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Impaired Autophagic Off-rate Causes Cardiac Aging in Progeria
Mouse Model
Yasuko K Bando, Takahiro Kamihara, Toyoaki Murohara, Nagoya
Univ, Nagoya Aichi, Japan
Y.K. Bando: None. T. Kamihara: None. T. Murohara: None.

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The Capillaries in Ischemic Border Zone: Origin And Role in
Myocardial Infarction and Heart Failure
Jiqui Chen, Lifan Liang, Roger J Hajjar, Mount Sinai Sch Med, New
York, NY
J. Chen: None. L. Liang: None. R.J. Hajjar: None.

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Rapamycin Can Ameliorate Antiretroviral Drug Mediated
Cardiotoxicity
Spoonthi Alapati, Manish K Gupta. Ctr for Translational Med (CTM)
in Lewis Katz Sch of Med at Temple Univ, Philadelphia, PA
S. Alapati: None. M.K. Gupta: None.

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Hydrogen Sulfide Protects the Heart Against Homocysteine-Induced
Remodeling by Regulating Autophagy and Pyroptosis
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Omaha, NE; Ravii Goyal, Univ of Arizona, Tuscon, AZ; David J. Lefer,
Louisiana State Univ Health Sciences Ctr, New Orleans, LA; Paras K.
Mishra, Univ of Nebraska Medical Ctr, Omaha, NE

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Acidifying Nanoparticle Upregulates Autophagy and Enhances
Cardiomyocyte Survival after Chemotherapy
Zehedina Khatun, Lin Meng, Gregory Martin, Tanhjeela Jahan, Lan
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Choukri Mekkaoui, David E. Sosnovik, Massachusetts General Hosp,
Boston, MA; Robert M. Blanton, Howard H. Chen, Tufts Medical Ctr,
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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
Eileen R Moreno, Mark A Lampert, Rita H Najor, Asa B Gustafsson,
Univ of California San Diego, La Jolla, CA
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
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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

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 Zoiolo, 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. Zoiolo: 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.
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444 The Phase of Third Harmonic of Radial Pulse Predicts Cardiac Risk in Asymptomatic Patients With Type 2 Diabetes Chi-Wei Chang, M-Iinn medical center, Taipei, Taiwan; Kuo-meng Liao, Zhongxiao Branch of Taipei City Hosp, Taipei, Taiwan; Yi-Ting Chang, Johns Hopkins Bloomberg Sch of Public Health., Baltimore, MD; Sheng-Hung Wang, M-Iinn medical center, Taipei, Taiwan; Ying-chun Chen, Zhongxiao Branch of Taipei City Hosp, Taipei, Taiwan; Gin-Chung Wang, JinMu Health Technology, Taipei, Taiwan C. Chang: None. K. Liao: None. Y. Chang: None. S. Wang: None. Y. Chen: None. G. Wang: None.

445 Monitoring the Hemodynamic Status During Three Trimesters of Pregnancy and Non-pregnancy Periods Chih-Yu Chen, Renai Branch of Taipei City Hosp, Taipei, Taiwan; Chi-Wei Chang, Sheng-Hung Wang, M-Iinn medical center, Taipei, Taiwan; Xiang-Yu Xie, Nati Taiwan Univ, Taipei, Taiwan; Gin-Chung Wang, JinMu Health Technology, Taipei, Taiwan C. Chen: None. C. Chang: None. S. Wang: None. G. Wang: None.

446 The Impact of the Menstrual Cycle on the Cardiovascular System Chih-Yu Chen, Renai Branch of Taipei City Hosp, Taipei, Taiwan; Chi-Wei Chang, Sheng-Hung Wang, M-Iinn medical center, Taipei, Taiwan; Xiang-Yu Xie, Nati Taiwan Univ, Taipei, Taiwan; Gin-Chung Wang, JinMu Health Technology, Taipei, Taiwan C. Chen: None. C. Chang: None. S. Wang: None. X. Xie: None. G. Wang: None.

447 Development of CD47-nanomedicine as Novel Treatment for Specific Mitigation of Thrombospondin 1-Induced Vascular Dysfunction Mingyi Yao, Samayita Ganguly, Midwestern Univ-CPG, Glendale, AZ; Aren Ebrahimi, Midwestern Univ-AZCOM, Glendale, AZ; Tamer Elbayoumi, Midwestern Univ-CPG, Glendale, AZ M. Yao: 2. Research Grant; Significant; The Cardiovascular Medical Research and Education Fund. S. Ganguly: None. A. Ebrahimi: None. T. Elbayoumi: 2. Research Grant; Significant; The Cardiovascular Medical Research and Education Fund.

448 Predicting Blood Pressure Response to Fluid Bolus Therapy Using Neural Networks with Clinical Interpretability Uma Girkar, Massachusetts Inst of Technology (MIT), Cambridge, MA; Ryo Uchimido, Beth Israel Deacconus Medical Ctr, Boston, MA; Li-wei H Lehman, Peter Szolovits, Leo Cel, Wei-Hung Weng, Massachusetts Inst of Technology (MIT), Cambridge, MA U. Girkar: None. R. Uchimido: None. L.H. Lehman: None. P. Szolovits: None. L. Cel: None. W. Weng: None.


453 Phentotyping by ECG Dynamics During Sleep Predicts Cardiovascular Disease Risk Factors in a Multicenter Study of Asymptomatic Middle-aged Community Adults Tracie K Lin, Johns Hopkins Univ, Baltimore, MD; Daniel Wendelen, Univ of Cincinnati, Cincinnati, MD; Brian O’Rourke, Steven R Jones, Naresh M Punjabi, Johns Hopkins Univ, Baltimore, MD; Svetlana D Sheng, CiPA Lab, Washington, DC; T.K. Lin: None. D. Wendelen: None. B. O’Rourke: None. S.R. Jones: None. N.M. Punjabi: None. D. Wendelen: None.


456
Fundamental New Clinical Insight From Excitation-contraction Coupling Studies of the Cardiovascular System via Integrated ECG And Photoplethysmography (PPG) Analyses During Sleep
Daniel R Wendelken, Neha Sanagala, Ginger A Conway, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH; Steven R Jones, Div of Cardiology, Johns Hopkins Univ Sch of Med, Baltimore, MD; Deepankar DeMazumder, Div of Cardiology, Univ of Cincinnati Coll of Med, Cincinnati, OH
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 1K08HL130662-01. NIH NHLBI 4RO1HL130662. NIH NHLBI 1U54HL119810. AHA 17UNPG33860002. AHA 18IFUNP33990024. AHA 18AMTG34280046.

457
The Effect of Dietary Patterns on Cardiometabolic Risks in Healthy Asian Adults
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C. Yang: None. T. Lin: None. C. Liu: None.

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
Daniel O Cervantes, Alejandro Andrade-Vicente, Chaoyu Sun, Saketh Anand, Jillian Pope, Jessica R Dorillo, Dong Sun, Antonio Cannata, Eleonora Gianfione, Govindiaah Vinukonda, Thomas H Hintze, New York Medical Coll, Valhalla, NY; Heather O’Malley, Lori L Isom, Univ of Michigan, Ann Arbor, MI; Mt; Jason T Jacobson, Marcello Rota, New York Medical Coll, Valhalla, NY

462
High Speed Imaging of Single Cardiomyocyte Action Potentials Using a Far-red Genetically Encoded Voltage Sensor
Shoshana Das, Massachusetts Inst of Technology, Cambridge, MA; Sanaya Shroff, Boston Univ, Boston, MA; Hua-an Tseng, Boston Univ, Boston University, MA; Anant Chopra, Xue Han, Christopher Chen, Boston Univ, Boston, MA
S. Das: None. S. Shroff: None. H. Tseng: None. A. Chopra: None. X. Han: None. C. Chen: None.

465
High Circulating Levels of 8-OHdG are an Independent Predictor of Subsequent MACE
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466
Myopathy Causing Bag3<sup>pro</sup> Protein Leads to Restrictive Cardiomyopathy Caused by Aggregate Formation and Sarcomere Disruption in Cardiomyocytes
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467
Identification of Novel Pathogenetic Mutations in Non-Canonical RNA Splice Sites in Congenital Heart Disease
Min Young Jang, Angela C Tai, Parth N Patel, Kaoru Ito, Joshua Gorham, Alexandre C Pereira, David M McKean, Christine E Seidman, J G Seidman, Harvard Medical Sch, Boston, MA

468
Sirt1 Ameliorates High Fat Diet-induced Diastolic Heart Failure
Shinichi Oka, Pelyong Zhai, Junichi Sadoshima, Rutgers New Jersey Medical Sch, Newark, NJ
S. Oka: None. P. Zhai: None. J. Sadoshima: None.

469
Genomic Context Predicts Dilated Cardiomyopathy
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470
Reactivation of Fetal MicroRNAs Contribute to Dilated Cardiomyopathy
Shreesti Shrestha, Xiaopeng Shen, Rui Liang, Fan Wang, Bradley K McConnell, Yu Liu, Univ of Houston, Houston, TX
Abstracts (continued)

471 Exploring Haploinsufficiency Drivers in a Set of eMyBP-C Missense Mutations Causing Hypertrophic Cardiomyopathy
Carmen Suay-corredera, Maria Rosaria Picolo, Elías Herrero-Galán, Diana Velázquez-Carreras, David Sánchez-Ortiz, Ctr Nacional de Investigaciones Cardiovasculares (CNIC), Madrid, Spain; Diego García-Giustianini, Health in Code, A Coruña, Spain; Javier Delgado, EMBL/CRG Systems Biology Res Unit, Ctr for Genomic Regulation (CRG), The Barcelona Inst of Science and Technology, Barcelona, Spain; Silvia Vlches, Ctr de Investigación Biomédica en Red en Enfermedades Cardiovasculares (CIBERCV), Madrid, Spain; Fernando Domínguez, Ctr Nacional de Investigaciones Cardiovasculares (CNIC), Madrid, Spain; Roberto Barnales-Villar, Unidad de Cardiopatías FAMILIARES, Insto de Investigación Biomédica de A Coruña (INIBIC), Complejo Hospario Univirio de A Coruña, Servizo Galego de Saúde (SERGAS), Univ da Coruña, A Coruña, Spain; Giulia Friso, Dept di Medicina Molecolare e Biotecnologie Mediche, Univ di Napoli Federico II, Napoli, Italy; Luis Serrano, EMBL/CRG Systems Biology Res Unit, Ctr for Genomic Regulation (CRG), The Barcelona Inst of Science and Technology, Barcelona, Spain; Pablo García-Pavía, Heart Failure and Inherited Cardiac Disease Unit, Dept of Cardiology, Hosp Univirio Puerta de Hierro, Madrid, Spain; Lorenzo Monserrat, Health in Code, A Coruña, Spain; Jorge Alegre-Cebollada, Ctr Nacional de Investigaciones Cardiovasculares (CNIC), Madrid, Spain
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472 Smyd1 Variants Regulate Distinct Areas of Chromatin in the Cardiomyocyte
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M. Szulik, M. Miller, T. Parnell

476 Pharmacogenetics and Drug Discovery for Anthracycline-Induced Cardiotoxicity Enabled by Sinoatrial Node-like Cells Derived from Human Pluripotent Stem Cells
Shuibing Chen, Weill Cornell Medical Coll, New York, NY
S. Chen

477 Role of Telomere Dysfunction in Duchenne Muscular Dystrophy Cardiomyopathy
Asuka Eguchi, Stanford Univ, Stanford, CA; Alex C. Y. Chang, Shanghai Jiao Tong Univ Sch of Med, Shanghai, China; Gaspard Pardon, Stanford Univ, Stanford, CA; Beth L. Pruitt, Univ of California, Santa Barbara, Santa Barbara, CA; Daniel Bernstein, Helen M. Blau, Stanford Univ, Stanford, CA
A. Eguchi, A. Chang, G. Pardon, B.L. Pruitt, H.M. Blau

478 Identifying Signaling Pathways Regulated by Trophoblasts in Placental Vascular Development Using 3D Tissue Models
Olga Kashpur, Mary C Wallingford, Tufts Medical Ctr, Boston, MA
O. Kashpur, M.C. Wallingford

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, S. Shen, R. Ng, X. Li, S.G. Campbell

480 A Novel Role for Telomerase in Calcific Aortic Valve Disease
Luis Hortells, Camille Boufford, Caiyun Regin, Claire Chu, William J Moorhead III, Genevieve Doyon, Dennis Bruemmer, Cynthia St Hilaire, Univ of Pittsburgh, Pittsburgh, PA
L. Hortells, C. Boufford, C. Regan, C. Chu, W.J. Moorhead, D. Bruemmer

481 Investigation into the Genetic Cause of Congenital Dilated Cardiomyopathy Using Human Induced Pluripotent Stem Cells
Kuo-cheng Wang, Young Wook Chun, Charles C. Hong, Univ of Maryland, Baltimore, Baltimore, MD
K. Wang, Y. Chun

482 Modeling PKP2 Mutation Associated Arrhythogenic Cardiomyopathy With CRISPR-edited Cardiomyocytes in Engineered Cardiac Tissues
Kehan Zhang, Samuel Tomp, Jourdan K Ewoldt, Boston Univ, Boston, MA; Christopher N Toepfer, Harvard Medical Sch, Boston, MA; Anant Chopra, Boston Univ, Boston, MA; Christine E Seidman, Jonathan G Seidman, Harvard Medical Sch, Boston, MA; Christopher S Chen, Boston Univ, Boston, MA
K. Zhang, S. Tomp, C.N. Toepfer, A. Chopra, C.E. Seidman, C.G. Seidman, C.S. Chen

485 STING(ing) the Heart: How DNA Damage and Inflammation Orchestrate Cardiac Remodeling and Heart Failure
Mohammad H. Al-Khalaf, Gauri Akolkar, Peter P. Liu, uOttawa Heart Inst, Ottawa, ON, Canada
M.H. Al-Khalaf, G. Akolkar, P.P. Liu

486 Deficiency of Myocardial miR-17-92 Cluster Exacerbates Ischemic Injury in Diabetic Mice
Arun Samidurai, Sean K Roh, Rakesh C Kukreja, Fadi N Salloum, Anindita Das, Virginia Commonwealth Univ, Richmond, VA
A. Samidurai, S.K. Roh, R.C. Kukreja, A. Das

487 Immune Response Factors in Patients with Diabetes Mellitus and Acute Coronary Syndrome
Svetlana Glova, Sergey Shlyk, Rostov State Medical Univ, Rostov - on - Don, Russian Federation
S. Glova, S. Shlyk

488 Overexpression of the Prostaglandin E2 EP3 Receptor Reduces Cardiac Function in an Angiotensin II Model of Hypertension
Timothy D Bryson, Jiang Xu, David Taube, Edward Peterson, Pamela HARDING, Henry Ford Hosp, Detroit, MI
T.D. Bryson, J. Xu, D. Taube, P. Harding
Abstracts (continued)

489

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

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


490

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

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G. Kararigas: None. D. Lehmann: None. C. Knosalla: None. L. 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

Koji Ohashi, Hayato Ogawa, Takashi Enomoto, Naoya Otaka, Toshiyuki Murohara, Noriyuki Ouchi, Nagoya Univ Graduate Sch of Med, Nagoya, Japan


493

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

Jinho Yk Na, Adnan Khan, Korea Univ, Sejong-ro, Korea, Republic of; Kyung-A Hwang, Dept of Agrofood Resources, Natl Inst of Agricultural Sciences, RDA, Wanju-Gu, Jeollabuk-do, Korea, Republic of; Youngja H Park 30019, Korea Univ, Sejong-ro, Korea, Republic of


494

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

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


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

Abstracts (continued)

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
Jeffrey S Crocker, Daiana C. O. Vieira, Kenneth G. Parks, Div of Cardiology and of Pharmacology and Systems Physiology, Univ of Cincinnati Coll of Med, Cincinnati, OH; Brian O’Rourke, Swati Dey, Div of Cardiology, Johns Hopkins Univ Sch of Med, Baltimore, MD; Deepankar DeMazumder, Div of Cardiology and of Pharmacology and Systems Physiology and of The Artificial Intelligence Ctr of Excellence, Univ of Cincinnati Coll of Med, Cincinnati, OH
J.S. Crocker: None. D.C. Vieira: None. K.G. Parks: None. B. O’Rourke: None. S. Dey: None. D. DeMazumder: 2. Research Grant; Significant; NIH NHLBI 1R01HL130662-01, NIH NHLBI 4R01HL130662-01, NIH NHLBI 4R01HL130662-01, NIH NHLBI 1U54HL119810, AHA 17UNP33860002, AHA 18IFUNP33990024, AHA 18AMTG34280046.

502
Reversible Cardiac Action Potential Recordings to Track Cellular Electrophysiology Over Days
Viviana Zlochiver, Stacie Edwards, Jonathan A. Cook, Rosy Joshi-Mukherjee, Aurora Res Inst, Milwaukee, WI
V. Zlochiver: None. S. Edwards: None. J.A. Cook: None. R. Joshi-Mukherjee: None.

503
Nicotinamide Riboside Modulates Late Sodium Current and Cardiac Repolarization
Daniel S Matasic, Pravda Quinones, Charles Brenner, Barry London, The Univ of Iowa, Iowa City, IA
D.S. Matasic: None. P. Quinones: None. C. Brenner: 7. Ownership Interest; Significant; Pro-Healthspan. 9. Consultant/Advisory Board; Significant; Chromaex. B. London: None.

504
AAV9-Mediated Overexpression of TRPM4 Increases the Incidence of Ventricular Arrhythmias in Living Mice
Andy Pironet, Frone Vandewiele, Nicnda Syam, Greetje Vande Velde, Rik Gijbers, Rudi Vennekens, Catholic Univ of Leuven, Leuven, Belgium

505
Adenosine Targets Connexin43 Gap Junction Expression and Function During Infection

506
Trpm4 Contributes to Ca2+-dependent Triggered Arrhythmias in Pathological Conditions
Frone Vandewiele, KU Leuven, Leuven, Belgium; Grieth Jacobs, UAntwerpen, Antwerpen, Belgium; Andy Pironet, Wouter Oosterlinck, Rudi Vennekens, KU Leuven, Leuven, Belgium

507
Activation of Transient Receptor Potential Canonical Channel Currents in Iron-Overloaded Cardiac Myocytes
Nathnaphat Siri-Angkul, Richard Gordan, Rutgers-New Jersey Medical Sch, Newark, NJ; Suwakon Wongjaikam, Chiang Mai Univ, Chiang Mai, Thailand; Nadezhda Fefelova, Judith Gwathmey, Rutgers-New Jersey Medical Sch, Newark, NJ; Siriporn Chattipakomp, Nippon Chattipakomp, Chiang Mai Univ, Chiang Mai, Thailand; Lai-Hua Xie, Rutgers-New Jersey Medical Sch, Newark, NJ

510
Spatial Transcriptomics Unveil ZBTB11 as a Regulator of Cardiomyocyte Degeneration in Arrhythmogenic Cardiomyopathy
Cornelis J Boogerd, Grégory PA Lacraz, Àbel Vértesy, Ilaria Perini, Hester de Ruiter, Andreas Brodehl, Hubrecht Inst, Utrecht, Netherlands; Petra van der Kraak, Manon Huibers, Nicolaas de Jonge, Univ Medical Ctr Utrecht, Utrecht, Netherlands; Jan Philip Junker, Berlin Inst for Medical Systems Biology, Berlin, Germany; Ayan Vink, Univ Medical Ctr Utrecht, Utrecht, Netherlands; Eva van Rooij, Hubrecht Inst, Utrecht, Netherlands

511
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; Christina S Moravec, Cleveland Clinic, Cleveland, OH; Eric M Small, Univ of Rochester, Rochester, NY

512
Extracellular Matrix Components Isolated from Diabetic Mice Alters Cardiac Fibroblast Function Through the AGE/RAGE Signaling Cascade
Stephanie Burr, James A Stewart Jr., The Univ of Mississippi, Oxford, MS
S. Burr: None. J.A. Stewart: None.

513
Exososomes Derived from Podoplanin Positive Cells Induce Fibrosis and Inflammation in Healthy Mouse Heart
Maria Cimini, Venkata Naga Srikanth Garikipati, Chunlin Wang, May Truongcao, Grace Huang, Vandana Mallareddy, Cindy Benedict, Raj Kishore, Temple Univ, Lewis Katz Sch, Philadelphia, PA
Abstracts (continued)

514
Proteomic Characterization of Extracellular Matrix Regulation in Human Aortic Valve Development and Disease
Cassandra L. Clift, Jennifer Bethard, Susana Comte-Walters, Lauren E. Ball, Medical Univ of South Carolina, Charleston, SC; David Bichell, Yan Ru Su, Vanderbilt Univ, Nashville, TN; Anand Mehta, Richard R. Drake, Peggi M. Angel, Medical Univ of South Carolina, Charleston, SC

515
WNT the Right Ventricle’s Had Enough
Margulies: None. Z.P. Arany: None.

516
GRK5 Regulates Cardiac Fibroblast Differentiation and Fibrosis
Akito Eguchi, Walter J Koch, Temple Univ Sch of Med, Philadelphia, PA
A. Eguchi: None. W.J. Koch: None.

517
Glutaminolysis is Required to Initiate Myofibroblast Differentiation and Persistence During Stress
Andrew A Gibb, Alyssa A Lombardi, Emma K Murray, Temple Univ, Philadelphia, PA; Yinfei Tan, Fox Chase Cancer Ctr, Philadelphia, PA; Pawel K Lorkiewicz, Univ of Louisville, Louisville, KY; Anh T Huynh, Devin W Kolmetzky, Temple Univ, Philadelphia, PA; Zolt Arany, Daniel P Kelly, Kenneth B Margulies, Univ of Pennsylvania, Philadelphia, PA; Bradford G Hill, Univ of Louisville, Louisville, KY; John W Elrod, Temple Univ, Philadelphia, PA

518
Pharmacological Inhibition of Human Antigen R (HuR) Blunts fibroblast Activation and Cardiac Fibrosis
Lisa C Green, Sarah R Anthony, Samuel Slone, Perwez Alam, Univ of Cincinnati, Cincinnati, OH; Liang Xu, Univ of Kansas, Lawrence, KS; Michael Trantar, Univ of Cincinnati, Cincinnati, OH

519
Desmin Protects Cardiomyocyte Nuclei From Microtubule-dependent Collapse
Julie Heffler, Parisha P Shah, Patrick Robison, Sai Phyo, Kimberly Veliz, Alexey Bogush, Joshua Rhoades, Rajan Jain, Benjamin L Prosser, Univ of Pennsylvania, Philadelphia, PA

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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L. Hortells: None. I. Valiente: None. N. Velayutham: None. K.E. Yutzey: None.

522
IL-10 Knockout Bone Marrow Fibroblast Progenitor Cells-derived Exosomes Activate Cardiac Fibroblast and Exaggerate Pressure Overload-induced Fibrosis in Mice Heart
Rajesh Kumari, Prabhat Ranjan, Prasanna Krishnamurthy, Univ of Alabama at Birmingham, Birmingham, AL; Raj Kishore, Ctr for Translational Med, Temple Univ, Philadelphia, PA; Suresh K Verma, Univ of Alabama at Birmingham, Birmingham, AL

523
Myocardial Hypertrophy and Fibrosis Regulated by Nogo-ROCK-norepinephrine Transporter Signaling Pathway in Spontaneously Hypertensive Rats
Shijun Li, Chinese PLA General Hosp, Beijing, China
S. Li: None.

524
Activated Fms-like Tyrosine Kinase 3 Receptor Prevents Ventricular Remodeling Induced by Ang II Through the Attenuation of Autophagy
Wenzhuo Ma, Cherngying Gao, Zhenghang Zhao, Dept of Pharmacology, Sch of Basic Med Sciences, Xi’an Jiaotong Univ Health Science Ctr, Xi’an, China
W. Ma: None.

525
In vitro Reverse Remodeling After Mechanical Unloading with Engineered Heart Tissue
Shi Shen, Lorenzo R Sewanar, Stuart G Campbell, Yale Univ, New Haven, CT
S. Shen: None. L.R. Sewanar: None. S.G. Campbell: None.

526
A Transcriptomic Analysis of Cardiac Myofibroblasts Reveals Novel Anti-fibrotic and Immunomodulatory Genes Modulated by CDC-Derived Exosomes
Everett J Sinibaldi, Fraser J Sim, Jennifer K Lang, Univ at Buffalo, Buffalo, NY
E.J. Sinibaldi: None. F.J. Sim: None. J.K. Lang: None.

527
Cardiac Fibroblast Ablation in Chronic Fibrosis
April Stempien-Otero, Dori Deri Helterline, Steve Farris, Univ Washington Sch Med, Seattle, WA
A. Stempien-Otero: None. D. Helterline: None. S. Farris: None.

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


530
Cardiac Fibroblast GSK-3α Contributes to Ventricular Remodeling and Dysfunction of the Failing Heart

Prachi UMBAKAR, Anand Prakash Singh, Qinkun Zhang, Hind Lal, Vanderbilt Univ Medical Ctr, Nashville, TN.

P. Umbarkar: None. A.P. Singh: None. Q. Zhang: None. H. Lal: None.

531
Urolithin A Suppresses Cardiac Fibrosis via Autophagy Pathway in the Diabetic Cardiomyopathy

Xiaojian Wu, Aab Cardiovascular Res Inst, Rochester, NY; Xiaoyan Zhu, You Zhou, Guangzhou Medical Univ, Guangzhou, China.

X. Wu: None. X. Zhu: None. Y. Zhou: None.

532
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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R. Aishwarya: None. M. Bhuiyan: None.

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

Wen-Pin Chen, You-Yi Li, Natl Taiwan Univ, Taipei, Taiwan.

W. Chen: None. Y. Li: None.

544
microRNA181c Activates Mitochondrial Calcium Uptake by Regulating Micu1 in the Heart

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H. Banavath: None. B. Roman: None. B. O’Rourke: None. M. Kohr: None. E. Murphy: None. C. Steenbergen: None. S. Das: None.

545
A Multifunctional Genetic Probe for Investigating Mitochondrial Calcium Dynamics in Cardiac Cells

Patrick J Ernst, Ningning Xu, Meng Zhao, Jianyi (Jay) Zhang, Xiaoguang (Margaret) Liu, Univ of Alabama at Birmingham, Dept of Biomedical Engineering, Birmingham, AL; Lufang Zhou, Univ of Alabama at Birmingham, Dept of Med Div of Cardiovascular Disease, Birmingham, AL.

P.J. Ernst: None. N. Xu: None. M. Zhao: None. J. Zhang: None. X. Liu: None. L. Zhou: None.

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
Stephanie Kereliuk, Prasoon Agarwal, Laura Cole, Kyle Cheung, Bo Xiang, Mario Fonseca, Grant Hatch, Jonathan McGavock, Vernon Dolinsky, Univ of Manitoba, Winnipeg, MB, Canada

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

549 Cardiac Aging is Associated with Impaired Mitophagy and Formation of Megamitochondria
Wenjing Liang, Alexandra G Moyzis, Rita A Najjar, Mark A Lampert, Åsa B Gustafsson, Univ of California San Diego, San Diego, CA

560 Differences in GCN5L1 Expression Between Male and Female Hearts Are Associated With Increased Mitochondrial Protein Acetylation
Janet R Manning, Dharendra Thapa, Manling Zhang, Michael Stoner, Ian Scott, Univ of Pittsburgh, Pittsburgh, PA

561 Bone Morphogenetic Protein-3b Deficiency Induces Metabolic Syndrome and Modulates Aipdogenesis
Ingrid Marti-Pamies, Alex Caplan, Univ of Pennsylvania, Philadelphia, PA; Robert B. Squires, Mass General Hosp, Boston, MA; Wei Han, Patrick Seale, Univ of Pennsylvania, Philadelphia, PA; Emmanuel S Buys, Donald B Bloch, Massachusetts General Hosp, Boston, MA; Marielle Scherrer-Crosbie, Univ of Pennsylvania, Philadelphia, PA

562 Comprehensive Arteriovenous Metabolomics in the Human Heart

563 Cardiac TIGAR Reduces Myocardial Energetics and Cardiac Function in the Pressure Overload Heart Failure Model
Yoshifumi Okawa, Atsushi Hoshino, Tomoya Kitani, Ryoetsu Yamanaka, Daichi Hato, Sakiko Honda, Yohi Fushimura, Ryota Urata, Yoshito Minami, Shyo Hashimoto, Ayumi Matsuki, Shunta Tanimishi, Toshiyuki Nishii, Tomohiro Hino, Nobuichiro Yagi, Eri Iwai-Kana, Satoaki Matoba, Kyoto Prefectural Univ of Med, Kyoto, Japan

564 Investigating the Roles of Cyclic C in Heart Disease
Jessica M Ponce, Grace Coen, Kathryn Spitzer, Antentor Hinton, Colleen Mitchell, E. Dale Abel, Duane Hall, Univ of Iowa, Iowa City, IA; Gavin Oudit, Univ of Alberta, Edmonton, AB, Canada; Chad Grueter, Univ of Iowa, Iowa City, IA

565 Response of the Ischemic Myocardium to Adrenergic Stimulation as Detected by Hyperpolarized [1-13C]pyruvate
Gaurav Sharma, Wei Chen, Weina Jiang, Aaron L. Anderson, Craig R Malloy, A. Dean Sherry, Chalamcmhi Khemtong, UT Southwestern Medical Ctr, Dallas, TX

566 Branched Chain Ketoacid Dehydrogenase Kinase Inhibition Alters Substrate Utilization and Gene Expression in Myocytes
Parker Siddall, Eliza Bollinger, Matthew Peloquin, Bina Albuquerque, Zhongyuan Sun, Gang Xing, Michelle Clasquin, Darren Dumiao, Mary Pirotrowski, Jake Delmore, Evanitha Pashos, Angela Hadjipanayis, Teresa Cunio, Chang Zou, Bei B. Zhang, Russell A. Miller, Rachel J. Roth Flach, Pfizer, Cambridge, MA

567 Fgf21 as a Biomarker for Metabolic Stress in Heart Failure
Salah Sommakia, Naredos Almaw, Elizabeth Nguyen, Dinesh Ramadurai, Thrupura Shankar, Sutip Navankasattusas, Robert Campbell, Stavros Drakos, Dipayan Chaudhuri, Univ of Utah, Salt Lake City, UT
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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.

Jake J. Wen, Geetha L Radhakrishnan, Craig Porter, Ravi S Radhakrishnan, UTMB, Galveston, TX

569
Functional Benefits of Muscle PGC-1alpha in Aged Animals.

S. Yang: None. E. Loro: None. S. Wada: None. T.S. Khurana: None. Z. Arany: None.

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Mechanism of Mitochondrial Calcium Uniporter Regulation.

Vivek Garg, Ishan Paranjpe, Tiffany Unsulangi, Junji Suzuki, Univ of California, San Francisco, CA; Lorin S. Milescu, Univ of Maryland, College Park, MD; Yuriy Kirichok, Univ of California, San Francisco, CA

575
Loss of Function Variant in CYB5R3 Associates with Exacerbated Cardiac Hypertrophy in Mice.

Nolan Thorne Carew, Univ of Pittsburgh, Pittsburgh, PA; Scott Hahn, Megan P Miller, Kathrine Wood, Colin G Wu, Oakland Univ, Rochester, MI

576
Phosphodiesterase 2 in Cardiac Arrhythmias and Heart Failure.

Mirna S. Fahmi, Mario Günscht, Johanna Siegert, Fabian Dutt, Stephan Künzel, Ctr of Pharmacology, Dept of Pharmacology and Toxicology, TU Dresden, Dresden, Germany; Kristina Lorenz, Leibniz-Institut für Analytische Wissenschaften - ISAS, Univ Duisburg-Essen, Dortmund, Germany; Michael Wagner, Susanne Kämmerer, All El-Armouche, Ctr of Pharmacology, Dept of Pharmacology and Toxicology, TU Dresden, Dresden, Germany
M. S. Fahmi: 2. Research Grant; Significant; DFG, Deutsche Forschungsgemeinschaft. M. Günscht: None. J. Siegert: None. F. Dutt: None. S. Künzel: None. K. Lorenz: None. M. Wagner: None. S. Kämmerer: 2. Research Grant; Significant; DFG, Deutsche Forschungsgemeinschaft. A. El-Armouche: 2. Research Grant; Significant; DFG, Deutsche Forschungsgemeinschaft. 3. Other Research Support; Significant; Novartis Pharma GMHB.

577
Matricryptin p115/59 Improves Cardiac Function Post-myocardial Infarction by Reducing Adverse Remodeling.

Gabriel A. Grilo, Patti R. Shaver, Rugmani P. Iyer, Lisandra E. de Castro Brás, East Carolina Univ, Greenville, NC

578
Brg1 Protects Cardiomyocytes Against Oxidative Damage Through Activation of the Nrf2 Signaling Pathway in Acute Myocardial Infarction.

Ning Hou, Guangzhou Medical Univ, Guangzhou, China; Xiaoping Liu, The Sixth Affiliated Hosp of Guangzhou Medical Univ, Guangzhou, China; Guanfeng Liang, Jiandong Luo, Guangzhou Medical Univ, Guangzhou, China
N. Hou: None. X. Liu: None. G. Liang: None. J. Luo: None.

579
Involvement of the Alpha 1A-Adrenergic Receptor in the Cardiac Adaptation to Physiological Stress.

Xenia Kaidonis, Wenying Niu, Andrea Y Chan, Scott Kesteven, Jianxin Wu, Siri E Ismaa, Michael Feneley, Robert M Graham, Victor Chang Cardiac Res Inst, Sydney, Australia

580
Cardiovascular Risks of Oxidative DNA Damage.

Kaitlin Lowran, Ann Fuell, Philip Popp, Colin G Wu, Oakland Univ, Rochester, MI
K. Lowran: None. A. Fuell: None. P. Popp: None. C. G. Wu: None.

581
Hyperglycemia Acutely Increases Cytosolic Reactive Oxygen Species (ROS) via O-linked GlcNAcylation Activation of CaMKII in Mouse Ventricular Myocytes.

Shan Lu, Zhandi Liao, Julie Bossuyt, Donald Bers, Univ of California, Davis, Davis, CA
S. Lu: None. Z. Liao: None. J. Bossuyt: None. D. Bers: None.

582
Obg-like Atpase 1 (OLA1) Regulates Cardiomyocyte Hypertrophic Response via Gsk3β Signaling.

Hien T Luong, Gayathri Narasimhan, John Henderson, Phuong Quach, Divya Annamalai, Univ of Alabama at Birmingham, BIRMINGHAM, AL; Prasanna Krishnamurthy, Univ of Alabama at Birmingham, Birmingham, AL

583
Single Cell Analysis of Monocytes and Macrophages in the Infarcted Heart.

Richard P Ng, Dave Calcagno, Avinash Toomu, Zhenxing Fu, Univ of California, San Diego, San Diego, CA; Aaron Aguirre, Ralph Weissleder, Massachusetts General Hosp, Boston, MA; Kevin King, Univ of California, San Diego, San Diego, CA
R. P. Ng: None. D. Calcagno: None. A. Toomu: None. Z. 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.

Yvanna Pantner, Emory Univ, Atlanta, GA; Yuuki Shimizu, Nagoya Univ Graduate Sch of Med, Nagoya, Japan; Rohini Polavarapu, Lian Li, Lih-Shon Chin, John Calvert, Emory Univ, Atlanta, GA
Role of Splice Variant Clic5B in Cardiac Mitochondrial Localization and Function

Devasena Ponnalagu, The Ohio State Univ, Columbus, OH; Ahmed Tafsril Hussain, Drew Univ Coll of Med, Philadelphia, PA; Erhe Gao, Lewis Katz Sch of Med, Philadelphia, PA; Harpreet Singh, The Ohio State Univ, Columbus, OH


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

Xiaoying Qiao, Liya Swain, Lara Reyelt, Cody Machen, Andrew Jarrah, Aditya Chennjorwala, Paige Crowley, Shiva Annamalai, Sina Foroutanjazi, Allen Razavi, Navin Kapur, Tufts Medical Ctr, Boston, MA


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

Asmat Salim, Tuja Mustafa, Ifran Khan, Sehrish Usman, ICCBS, Karachi, Pakistan; Nadia Naem, Dow Univ of Health Sciences, Karachi, Pakistan; Hana’a Iqbal, ICBS, Karachi, Pakistan

A. Salim: None. T. Mustafa: None. I. Khan: None. S. Usman: None. N. Naem: None. H. Iqbal: None.

Beta-blockers Reverse Beta Adrenergic Receptors Desensitization Under Hypoxia

Yu Sun, Marveen Gupta, Kate Stenson, Sathymangla Prasad, Cleveland clinic foundation, Cleveland, OH

Y. Sun: None. M. Gupta: None. K. Stenson: None. S. Prasad: None.

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

Liya Swain, Xiaoying Qiao, Lara Reyelt, Shiva Annamalai, Paige Crowley, Courtney Boggins, Navin Kapur, Tufts Medical Ctr, Boston, MA

L. Swain: None. X. Qiao: None. L. Reyelt: None. S. Annamalai: None. P. Crowley: None. C. Boggins: None. N. Kapur: None.

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

K’Shylah S Whitehurst, Heather K Estes, Robert C Chase, Urna M Sharma, Jitka A Virag, ECU, Greenville, NC


Improving Cardiovascular Health Through DNA Repair

Colin G. Wu, Oakland Univ, Rochester, MI

C.G. Wu: None.

Cardioprotection During Ischemia by Induced Coronary Collateral Growth

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

Ana Paula V Dantas, Joaquim Bobi, Luis Ortega-Paz, Ahmed Amin, Margarida Pujol-Lopez, Iolanda Lazaro, Manel Sabate, Salvatore Brugaletta, Inst of Biomedical Res August Pi Sunyer (IDIBAPS), Dept of Cardiology, Hosp Clinic, Barcelona, Spain


Mir-182-5p is a Conserved Downstream Effector of Tbx5 Involved in Cardioprotection During Ischemia by Induced Coronary Collateral Growth

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

Ana Paula V Dantas, Joaquim Bobi, Luis Ortega-Paz, Ahmed Amin, Margarida Pujol-Lopez, Iolanda Lazaro, Manel Sabate, Salvatore Brugaletta, Inst of Biomedical Res August Pi Sunyer (IDIBAPS), Dept of Cardiology, Hosp Clinic, Barcelona, Spain


Cardioprotection During Ischemia by Induced Coronary Collateral Growth

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

Ana Paula V Dantas, Joaquim Bobi, Luis Ortega-Paz, Ahmed Amin, Margarida Pujol-Lopez, Iolanda Lazaro, Manel Sabate, Salvatore Brugaletta, Inst of Biomedical Res August Pi Sunyer (IDIBAPS), Dept of Cardiology, Hosp Clinic, Barcelona, Spain

Abstracts (continued)

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

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

606 Stimulation of Cardiomyocyte a- and b-Adrenoceptors Equally Regulates Exosome Generation and mRNA Content

607 Effects of Blocked MicroRNA-221 and 222 in Differentiation of Human Pluripotent Stem Cells Derived Hematopoiesis and Hemogenic Endothelium via c-KIT Upregulation
Ji Yoon Lee, 1Dept of Biomedical Science, CHA Stem Cell Inst, CHA Univ, Gyeonggi-do, Korea, Republic of; Sack-Ho Hong, 2Dept of Internal Med, Kangwon Natl Univ, Chuncheon, Korea, Chuncheon, Korea, Republic of. J. Lee: None. S. Hong: None.

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

612 Automated Analysis of Displacement from Intravitral Multiphoton Microscopy in Mouse Ventricile

613 Isolating the Pathological Contribution of Detyrosinated Microtubules in Human Myocardial Mechanics

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

615 The Cardiac Myosin Inhibitor, CK-3773274, Reduces Contractility in the R409q Mouse Model of Hypertrophic Cardiomyopathy
Darren T Hwee, Yangsong Wu, Peadar Crennin, Bradley P Morgan, Fady I Malik, Eva R Chin, Cytokinetics, Inc., South San Francisco, CA. D.T. Hwee: 1. Employment; Significant; $10,000 or more during last 12 months. 7. Ownership Interest; Modest; Equity position. Y. Wu: 1. Employment; Significant; $10,000 or more during last 12 months. 7. Ownership Interest; Modest; Equity position. P. Crennin: 1. Employment; Significant; $10,000 or more during last 12 months. 7. Ownership Interest; Modest; Equity position. B.P. Morgan: 1. Employment; Significant; $10,000 or more during last 12 months. 7. Ownership Interest; Modest; Equity position. F.I. Malik: 1. Employment; Significant; $10,000 or more during last 12 months. 7. Ownership Interest; Modest; Equity position. E.R. Chin: 1. Employment; Significant; $10,000 or more during last 12 months. 7. Ownership Interest; Modest; Equity position.

616 Glycogen Synthase Kinase 3b Localizes to and Modulates Sarcomere Function in Health and Disease
Jonathan A Kirk, Loyola Univ Chicago, Maywood, IL. J.A. Kirk: None.

617 In vivo Titin Oxidation as a Modulator of Sarcomeric Contractility

618 Overexpression of Rrm2B Elevates dATP and Cardiac Function

619 Cardiac Function in Electronic Cigarette-Exposed Adolescent Mice

620 Molecular Mechanisms and Therapeutic Approaches to Myofilament Glycation as a Result of Diabetes
621
Cardiac Myosin Binding Protein-C Phosphorylation in Ser-273 and Ser-282 is Critical to Maintain Cardiac Function During Aging
Paola C Rosas, Chad M Warren, Ashley Batra, UIC, Chicago, IL; Heidi Creed, Texas A&M, College Station, TX; R John Solaro, UIC, Chicago, IL; Carl W Tong, Texas A&M, College Station, TX

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Load-Independent Systolic Dysfunction and Altered Z-Disc Protein Phosphorylation in Swine with Stretch-Induced Myocardial Stunning
Brian R Weil, Saleem Rasam, UNIVERSITY AT BUFFALO, Buffalo, NY; Filip Konecny, McMaster Univ, Hamilton, ON, Canada; Cody Smith, Jun Qu, John M Canty Jr., UNIVERSITY AT BUFFALO, Buffalo, NY

625
Mixed Lineage Kinase 3 Regulates Blood Pressure Through Kinase Independent Effects in the Vasculature
Timothy D Calamaras, Tufts Medical Ctr, Boston, MA; Robert A Baumgartner, Univ of Pittsburgh Medical Ctr, Pittsburgh, PA; Mark Aronovitz, Tufts Medical Ctr, Boston, MA; Joseph McCarthy, Novartis, Boston, MA; Kelly Tam, Seung Kyum Kim, Gregory Martin, Daniel A Richards, Tufts Medical Ctr, Boston, MA; Paulina Baca, Tufts Univ Sackler Sch of Biomedical Sciences, Boston, MA; Iris Z Jaffe, Robert M BLANTON Jr., Tufts Medical Ctr, Boston, MA

626
Pro-Inflammatory Signaling by Cardiomyocytes Involves Activation of a RhoA Dependent Gene Expression Pathway
Cameron S Brand, Hoyoung Moon, Joan Heller Brown, Univ of California San Diego, La Jolla, CA
C.S. Brand: None. H. Moon: None. J. Brown: None.

627
Primary Cilia of the Cardiac Neural Crest Orchestrate Critical Aspects of Ventricular Maturation and Postnatal Cardiac Function: A Role for Hedgehog Signaling
Lindsey A Fitzsimons, Graduate Sch of Biomedical Science & Engineering, Univ of Maine, ORONO, ME; Adriana M Moran, Dept of Pediatric Cardiology, Maine Medical Ctr, Portland, ME; Kerry L Tucker, Coll of Osteopathic Med, Univ of New England, Biddeford, ME

628
Diabetes-Mediated Vascular Calcification is RAGE-Dependent
Amber M. Kay, James A. Stewart Jr., Univ of Mississippi, University, MS
A.M. Kay: None. J.A. Stewart: None.

630
Tnhi-C-Deficient Mice Reveal That Ubiquitin-Proteosome-System Dysfunction is Not Sufficient to Impair Cardiac Performance
Jared M McLendon, Xiaoming Zhang, Colleen S Stein, Nathan H Wittmer, Gabrielle M Abouassaly, Ryan L Boudreau, Univ of Iowa, Iowa City, IA

631
Complementary Roles for 3-mercaptopropionic Sulfurtransferase and Cystathionine γ-lyase in Angiogenesis
Athenasia Pavlidou, Univ of Athens, Athens, Greece; Sofia-Iris Bibli, Goethe Univ, Frankfurt, Germany; Katalin Modis, Univ of Texas Medical Brach, Galveston, TX; Noriyuki Nagahara, Isotope Res Ctr, Nippon Medical Sch, Tokyo, Japan; Csaba Szabo, Univ of Texas Medical Brach, Galveston, TX; Ingrid Fleming, Goethe Univ, Frankfurt, Germany; Andreas Papapetropoulos, Univ of Athens, Athens, Greece

632
MTOR-Proteasome Imbalance Upon Deletion of Pras40 Inhibits Cardiac Growth but Results in Cardiac Failure
Eva RIECHERT, Moritz H. Kern, Agniezka A. Gorska, Christoph Hofmann, Lonny Jürgensen, Kira Gür, Than C. Ho, Univ Hosp Heidelberg, Heidelberg, Germany; Joanna Kirkpatrick, Norman Rahnis, Leibniz Inst on Aging- Fritz Lipmann Inst, Jena, Germany; Hugo A. Katus, Mirko Völkers, Univ Hosp Heidelberg, Heidelberg, Germany

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Sammaphorin3e-Plexin1 Signaling is Required for Cardiac Ventricular Compaction
Reddemma Sandiredy, Dasan Mary Cibi, Anamika Singh, Duke-NUS Medical Sch, Singapore, Singapore; Nicole Tee, Natl Heart Res Inst Singapore, Singapore, Singapore; Akiyoshi Uemura, Dept of Retinal Vascular Biology, Nagoya City Univ Graduate Sch of Medical Sciences, Nagoya, Japan; Jonathan A Epstein, Penn Cardiovascular Inst, Dept of Med, Univ of Pennsylvania, Philadelphia, PA; Manvendra K Singh, Duke-NUS Medical Sch, Singapore, Singapore

634
Role of Microglial Calcium Signaling in Ischemic Stroke
Petr Tvrdk, Lai Liu, Khadijeh A Sharifi, M. Yashar S. Kalani, Univ of Virginia, Charlottesville, VA

635
β-adrenergic Stimulation Compartimentalizes β-Signaling Into Nanoscale Local Domains by Targeting the C-termius of β-adrenoceptors
Lipeng Wang, Huaqian Yang, Yuyun Gong, Xuexin Fan, Siyu Zhu, Xiaoting Wang, Yupu Wang, Linlin Li, Xin Xing, Xiaoxiao Liu, Guangshen Ji, Tingting Hou, Yan Zhang, Ruiping Xiao, Shiqiang Wang, Peking Univ, Beijing, China
Abstracts (continued)

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

Takahiro Hiraide, Dept of Cardiology, Keio Univ Sch of Med, Tokyo, Japan; Toshiaki Teratani, Div of Gastroenterology and Hepatology, Dept of Internal Med, Keio Univ Sch of Med, Tokyo, Japan; Masaharu Kataoka, Jin Endo, Motoaki Sano, Dept of Cardiology, Keio Univ Sch of Med, Tokyo, Japan; Yoji Hakamada, Dept of Basic Science, Sch of Veterinary Nursing and Technology, Faculty of Veterinary Science, Nippon Veterinary and Life Science Univ, Tokyo, Japan; Keiichi Fukuda, Dept of Cardiology, Keio Univ Sch of Med, Tokyo, Japan; Takanori Kanai, Div of Gastroenterology and Hepatology, Dept of Internal Med, Keio Univ Sch of Med, Tokyo, Japan. T. Hiraide: None. T. Teratani: None. M. Kataoka: None. J. Endo: None. M. Sano: None. Y. Hakamada: None. K. Fukuda: None. T. Kanai: None.

641 Drosophila Adipogenesis Regulates Cardiac Function
Laura P Musselman, Bryon F Tuthill II, Binghamton Univ, Binghamton, NY. L.P. Musselman: 2. Research Grant; Significant; ADA SDG17SDG33400207. B.F. Tuthill II: None.

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


644 Enhancing Lymphangiogenesis Ameliorates Chronic Heart Failure

645 OUBIC as an Alternative “Clearing” Method for Creating Hydrogel-based Structure in Organs

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

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

650 Dose-response Effect of Hyperglycemia in Maternal Diabetes Mediated Congenital Heart Defects
Corin Mansfield, Sathiyanarayanan Manivannan, Emily Morris Cameron, Vidu Garg, Madhumita Basu, Nationwide Children's Hosp, Columbus, OH. 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
Kanna Fujita, Seitaro Nomura, The Univ of Tokyo, Bunkyo, Tokyo, Japan; Takanori Fujita, Res Ctr for Advanced Science and Technology, the Univ of Tokyo, Meguro, Tokyo, Japan; Masahiro Satoh, Res Ctr for Advanced Science and Technology, the Univ of Tokyo, Meguro, Tokyo, Japan; Toshiyuki Ko, Shintaro Yamada, Masanich Ito, The Univ of Tokyo, Bunkyo, Tokyo, Japan; Masanori Katoh, Res Ctr for Advanced Science and Technology, the Univ of Tokyo, Meguro, Tokyo, Japan; Issei Komuro, The Univ of Tokyo, Bunkyo, Tokyo, Japan. K. Fujita: None. S. Nomura: None. T. Fujita: None. M. Satoh: None. T. Ko: None. S. Yamada: None. M. Ito: None. M. Katoh: None. M. Hatano: None. H. Aburatani: None. I. Komuro: None.

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652
Increased Gα Gradient Expression Plays a Pivotal Role in the Progression of Heart Failure by Impairing Car HANDing
HIDEAKI INAZUMI, Kyoto Univ, Kyoto, Japan; Koichiro Kuwahara, Shinshu Univ, Matsumoto, Japan; Yashiro Hirokawa, Nagasaki, Hideyuki Kinoshita, Kenji Moriuchi, Hiromu Yanagisawa, Toshio Nishikimi, Katsuya Nakao, Takeshi Kimura, Kyoto Univ, Kyoto, Japan

653
The Long Noncoding RNA Landscape of the High Altitude Induced Thromboendothelial Disorder: Role of Endogenous miRNA Sponge Prabhshar Kumar Jha, Aatita Vijay, Amit Prabhakar, DIAP, DRDO, India; Tathagat Chatterjee, Army Hosp (RR), Delhi, India; Nitiin Bajaj, Command Hosp, Chandigarh, Chandigarh, India; Velu Nair, Armed Forces Medical Coll, Pune, India; Bhuvnesh Kumar, Mohammad Zahid Ashraf, Manish Sharma, DIAP, DRDO, Delhi, India

654
Genomic Binding of Forkhead Box Protein O1 Reveals Its Unique Role in Cardiac Hypertrophy
Jessica Pfleger, Rujika Roy, Erhe Gao, Walter J Koch, Temple Univ, Philadelphia, PA

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Protein Arginine Methyltransferase 6 Controls Cardiac Hypertrophy by Differential Arginine and Lysine Methylation of Histone H3
Vineesh Raveendran, Mohammad Zahid Ashraf, Nabanita Kundu, Yana Kropotova, Neeki Ahmadi, Sabyasachi Sen, George Washington Univ, Washington, DC

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Construction and Application of an Epigenetic Atlas of the Human Heart
Dimple Prasher, Univ of Calgary, Calgary, AB, Canada; Hao Zhang, Univ of Alberta, Edmonton, AB, Canada; Patrick M McCarthy, Northwestern Univ, Chicago, IL; Gavin Ouad, Univ of Alberta, Edmonton, AB, Canada; Paul W M Fedak, Cumming Sch of Med, Univ of Calgary, Calgary, AB, Canada; Steven C Greenway, Alberta Children's Hosp, Univ of Calgary, Calgary, AB, Canada

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Long Noncoding RNA Ppp1r1b Regulates Myogenic Differentiation Through Modulating Histone 3 Methylation
Xuedong Kang, Yan Zhao, Joseph Wu, Stanley F Nelson, Marlin Touma, UCLA-David Geffen Sch Med, Los Angeles, CA

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RNF20/40 Regulates Cardiomyocyte Maturation
Nathan J Vandusen, Julianna Y Lee, Wei-liang Gu, Ishi Sethi, Shengbao Suo, Justin King, Yanjiang Zheng, Yuxuan Guo, William T Pu, Boston Children's Hosp, Boston, MA

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Recellularization of Acellular Xenogenic Scaffold With Autologous Human Mesenchymal Stem Cells Rescues the Xenoreactive Immune Response
Sabin J Bozzo, Jimmy Kang, Benjamin Adam, Michael C Moon, Darren H Freed, Jyeen Nagendran, Jeevan Nagendran, Univ of Alberta, Edmonton, AB, Canada

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Mesenchymal Stem Cells Overexpressing FGF21 Improve Functional Recovery After Traumatic Brain Injury
Kai-Yun Chen, Rami Ahmad Shahror, Chung-Che Wu, Yang-Hsiao Chiang, Taipei Medical Univ, Taipei, Taiwan
K. Chen: None. R.A. Shahror: None. C. Wu: None. Y. Chiang: None.

702
Fusion of Cardiac Progenitor Cell and Cardiomyocyte Induces Cardiomyocyte Division
Zhongming Chen, Ingrid Bender, Jop van Berlo, Univ of Minnesota-Twin Cities, Minneapolis, MN
Z. Chen: None. I. Bender: None. J. van Berlo: None.

703
Transplantation of Modified Mesenchymal Stem Cells (MSCs) Helps Reduce Systemic Inflammation in Diet-Induced Obese Mouse Model
Clyton C Domingues, Nabani Kundu, Yana Kropotova, Neeki Ahmadi, Sabyasachi Sen, George Washington Univ, Washington, DC
C.C. Domingues: None. N. Kundu: None. Y. Kropotova: None. N. Ahmadi: None. S. Sen: None.

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Profiling Differential Response to Myocardial Infarction by Single Cell Analysis of the Cardiac Interstitium
Elvira Forte, The Jackson Lab, Bar Harbor, ME
E. Forte: None.

705
Synergistic Activation of the Cardiac Enhancer Landscape During Cardiac Reprogramming
Glyn尼斯 A Garry, Hisayuki Hashimoto, Zhaoaing Wang, Huanyu Zhou, Ning Liu, Rhonda Bassel-Duby, Eric N Olson, UT Southwestern Medical Ctr, Dallas, TX

706
Changes in Translational Efficacy During Zebrafish Heart Regeneration
Joseph A Goldman, The Ohio State Univ, Columbus, OH; Ariel Bazzini, Stowers Inst, Kansas City, MO; Antonio Giraldez, Yale Univ, New Haven, CT; Kenneth Poss, Duke Univ, Durham, NC
J.A. Goldman: None. A. Bazzini: None. A. Giraldez: None. K. Poss: None.
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707
Cortical-bone Stem Cell Therapy Alters the Inflammatory Response After Myocardial Infarction
Alexander Hobby, Remus Beretta, Giulia Borghetti, Eric Feldsott, Deborah Eaton, Hajime Kubo, Sadia Mohsin, Steven Houser, Temple Univ, Philadelphia, PA

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
Farwah Iqbal, Univ of Toronto Canada, Toronto, ON, Canada; Peter Szaraz, Create Fertility Ctr, Toronto, ON, Canada; Clifford Librach, Create Fertility Ctr, Univ of Toronto, Toronto, ON, Canada
F. Iqbal: None. P. Szaraz: None. C. Librach: None.

709
DNA Damage-free iPS-cardiomyocyte Reduces Cardiac Fibrosis Through Downmodulation of Exosomal miR-101
Ramawamy Kannappan, Jessica M Miller, Vasanthi Rajasekaran, Namakkal Rajasekaran Soorapan, Jiany Zhang, Univ of Alabama at Birmingham, Birmingham, AL

710
Quality of Life Assessment in Yucatan Mini Swine after Myocardial Infarction
Sherry L Daugherty, Danielle Spencer-Bearham, Andrew Jauregui, Jeremy Winkelman, Laryenth D Lancaster, Kenneth A Fox, Univ of Arizona, Tucson, AZ; Ryan J Avery, Northwestern Univ, Chicago, IL; Jennifer Koevern, Steven Goldman, Jordan J Lancaster, Univ of Arizona, Tucson, AZ

711
Therapeutic Effects of Engineered Human Pluripotent Stem Cell-derived Lymphatic Endothelial Cells on Experimental Lymphedema
Shin- Jeong Lee, Yoonse Univ, Seoul, South Korea, Republic of; Young-Doug Sohn, Emory Univ, Atlanta, GA; Eun-Ah Sung, JungWoo Kim, Yonsei Univ, Seoul, Korea, Republic of; Young-sup Yoon, Emory Univ, Atlanta, GA
S. Lee: None. Y. Sohn: None. E. Sung: None. J. Kim: None. Y. Yoon: None.

712
mRNA Stability in Pluripotency and Differentiation of Induced Pluripotent Stem Cells
Hien T Luong, Univ of Alabama at Birmingham, Birmingham, AL; Sahana S Babu, Lonza, R&D Cell Therapy Group, Walkersville, MD; John Henderson, Phuong TM Quach, Prasanna Krishnamurthy, Univ of Alabama at Birmingham, Birmingham, AL

713
Engineering Complex Tissue Mechanical Environment for Cardiac Microtissues Derived from Human Induced Pluripotent Stem Cells
Zhen Ma, Chenyan Wang, Syracuse Univ, Syracuse, NY; Sangmo Koo, Costas Grigoropoulos, Univ of California, Berkeley, Berkeley, CA
Z. Ma: None. C. Wang: None. S. Koo: None. C. Grigoropoulos: None.

714
Mapping the Transcriptional Dynamics of Pluripotent Stem Cell-derived Endothelial Cell Differentiation by Single Cell RNA Sequencing

715
A Metabolic Mechanism for Cardiomyocyte Cell Cycle Arrest
Richard James Mills, QIMR Berghofer Medical Res Inst, Brisbane, Australia
R.J. Mills: None.

716
2D and 3D Assessment of Angiogenesis in Cardiac Engineered Tissues Implanted on Infarcted Rat Hearts
Fabiola Munarin, Rajeev J Kant, Cassidy E Rupert, Amelia Khoo, Karen L.K. Coulombe, Brown Univ, Providence, RI
F. Munarin: 2. Research Grant; Significant; NIH R01 HL135091. R.J. Kant: None. C.E. Rupert: None. A. Khoo: None. K.L. Coulombe: 2. Research Grant; Significant; NIH R01 HL135091.

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
Szajraz PÁĂʼzer, Alexander Johnston, Create Program Inc., Toronto, ON, Canada; Farwah Iqbal, Univ of Toronto, Toronto, ON, Canada; Banafshe Hoseini, Alexendra Lucato, Poonam Mander, Create Program Inc., Toronto, ON, Canada; Jun Wu, Ren-Ke Li, Univ Health Network, Toronto, ON, Canada; Clifford Librach, Univ of Toronto, Toronto, ON, Canada

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

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CRISPR/Cas9-Based Knockout of the TLR4 gene Enhances Secretion of Extracellular Vesicles with Anti-Inflammatory Properties from Human Cardiac Mesenchymal Stromal Cells
Yesha Shary, Nili Nattali-Shani, Jonathan Leor, Tamman and Neufeld Cardiovascular Res Inst, Sheba Medical Ctr, Sackler Sch of Med, Tel Aviv Univ, Tel Aviv, Israel
Y. Shary: None. N. Nattali-Shani: None. J. Leor: None.
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720
Prenatal Exposure of Cigarette Smoke Impacts Cardiac Regeneration


721
Human Neonatal Cardiac Progenitor Cells Derived Exosomes Induce Cardiomyocytes Proliferation
Sudhisht Sharma, Linh Wang, Chetan Ambastha, Rachana Mishra, Sunjay Kaushal, Univ of Maryland, Baltimore, MD


722
Unveiling Ccbe1 Role as a Modulator of Cardiomyocyte Differentiation
Marta M Silva, Pedro Vicente, Daniel Simão, Ana P Terrasso, iBET, Oeiras, Portugal; José M Inácio, José A Belo, CEDOC, Lisboa, Portugal; Patricia Gomes-Alves, Margarida Serra, Paula M Alves, iBET/ITQB NOVA, Oeiras, Portugal


723
Cortical Bone Derived Stem Cells Modulates T Cell Response After Myocardial Injury
Marcus J. Wagner, Lene Ma, Christopher F. Bryan, Ritu S. Vyas, Temple Univ, Philadelphia, PA; Justin J. Kurian, Temple University, Philadelphia, PA; Mohsin Khan, Sadia Mohsin, Temple Univ, Philadelphia, PA


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Neonatal Heart Regeneration Preserves Native Ventricular Biomechanical Properties After Myocardial Infarction


725
A Transcriptional Basis for Neonatal Heart Regeneration at Single Cell Resolution
Zhaoning Wang, Miao Cui, Akansha Shah, Wei Tan, Ning Liu, Rhonda Bassel-Duby, Eric N. Olson, UT Southwestern, Dallas, TX


726
An Improved Cardiac Reprogramming System with the Aid of Two Chemical Compounds
Yang Zhao, Peking Univ, Beijing, China

Y. Zhao: None.

730
Celltype-Specific Functions in Dilated Cardiomyopathy Caused by the LMNA Gene Mutation


731
Sorafenib Induces Cardiotoxicity via Damage to Cardiac Endothelial Cells
Manar Elmadany, Zoltan Szabo, Sami Raatikainen, Lin Ruizhu, Tarja Alakoski, Res Unit of Biomedicine, Dept of Pharmacology and Toxicology, Univ of Oulu, Oulu, Finland; Jarkko Pihola, Div of Cardiologic, Dept of Internal Med, Oulu Univ Hosp, Oulu, Finland; Raisa Yrjölä, Res Unit of Biomedicine, Dept of Pharmacology and Toxicology, Univ of Oulu, Oulu, Finland; Ilkka Miinalainen, Biocenter Oulu, Univ of Oulu, Oulu, Finland; Pirjo Åström, Cancer and Translational Med Res Unit, Faculty of Med, Univ of Oulu, Oulu, Finland; Kari Alitalo, Whiuri Res Inst and Translational Cancer Biology Program, Faculty of Med, Univ of Helsinki, Helsinki, Finland; Olli Tehunen, Johanna Magga, Risto Karkkälä, Res Unit of Biomedicine, Dept of Pharmacology and Toxicology, Univ of Oulu, Oulu, Finland


732
Attenuation of Tnf-α Induced Injury in Cardiomyocytes by Chlorogenic Acid via Inhibiting Nf-κB and Jnk Signals
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PRMT1 Suppresses Atf4-mediated Endoplasmic Reticulum Response In Cardiomyocytes
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NF-κB Signaling Regulates Mitochondrial Permeability Transition Pore Opening of Cardiac Myocytes via Cyclophilin D (CypD) Modulation
Lorrie A Kirshenbaum, Rimpal Dhingra, Matthew Guberman, Victoria Margulets, Floribeth Aguilar, Univ of Manitoba, Winnipeg, MB, Canada

735
A Novel Class of Sphingolipids Mediate Autophagy and Apoptosis in Models of Ischemia
Anna Kovilakath, A. Lauren Cowart, Virginia Commonwealth Univ, Richmond, VA
A. Kovilakath: None. A. Cowart: None.

736
Increased Cell Death in Regions of Elevated Aortic Wall Shear Stress in Bicuspid Valve Aortopathy
Ashna K Maredia, Fatima Iqbal, David G Guzzardi, Univ of Calgary, Calgary, AB, Canada; Alex J Barker, Northwestern Univ, Chicago, IL; Patrick M McCarthy, Northwestern Univ, Chicago, IL, Canada; Paul W. M. Fedak, Steven C Greenway, Univ of Calgary, Calgary, AB, Canada

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N-ethylmaleimide sensitive factor (NSF) is Essential in Necrotic Cell Death
Emma K Murray, Alyssa A Lombardi, Jonathan P Lambert, John W Elrod, Temple Univ Medical Sch, Philadelphia, PA

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Comparative Cardiotoxicity of Tyrosine Kinase Inhibitors Ponatinib and Pf114
Anand Prakash Singh, Prachi Umbarkar, Michael S Glennon, Qin Kun Zhang, Vanderbilt Univ Med, Ctr, Nashville, TN; Ghermes Chilov, Fusion Pharma, LLC, Moscow, Russian Federation; Jason R Becker, Hnd L, Vanderbilt Univ Med, Ctr, Nashville, TN

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Circulating Extracellular Vesicles as Novel Biomarkers of Cardiovascular Risk in Older Women With Different Sitting Time Patterns
Ya-Ju Chang, Yesenia Avitia, Suneeta Godbole, John Bellettiere, Cheryl L Rock, Ruth E Patterson, Marta M Jankowska, Jaccqueline Kerr, Matthew A Allison, Loki Natarajan, Dorothy D Sears, UC San Diego, La Jolla, CA

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Circulating miRNAs and Apoptosis Genes With Hyperglycemia in Ischemic Stroke Patient
Yi-Chen Hsieh, Nai-Fang Chi, Hung-Yi Chiou, Taipei Medical Univ, Taipei, Taiwan
Y. Hsieh: None. N. Chi: None. H. Chiou: None.

750
Gene Signatures to Distinguish Amyloid Cardiomyopathy Risk in Multiple Myeloma Patients

751
The Inhibition of PARP Provides Greatercardioprotection in I Mice With Heart Failure
Manami Katoh, Seitaro Nomura, Toshiyuki Ko, Kanna Fujita, Shintaro Yamada, Masamichi Ito, The Univ of Tokyo, Bunkyo-ku, Japan; Hiroyuki Aburatani, Res Ctr for Advanced Science and Technology, The university of Tokyo, meguro-ku, Japan; Issei Komuro, The Univ of Tokyo, Bunkyo-ku, Japan

752
A Novel Senolytic Drug, Seno-7284 Ameliorates Aging and Age-related Cardiometabolic Disorders
Goro Katsuumi, Dept of Cardiovascular Biology and Med, Niigata Univ Graduate Sch of Medical and Dental Sciences, Niigata, Japan; Ippei Shimizu, Yohko Yoshida, Div of Molecular Aging and Cell Biology, Niigata Univ Graduate Sch of Medical and Dental Sciences, Niigata, Japan; Masayoshi Suda, Yuca Hayashi, Ryutaro Ikegami, Takayuki Wakasugi, Masaaki Nakao, Ryo Furuchuchi, Dept of Cardiovascular Biology and Med, Niigata Univ Graduate Sch of Medical and Dental Sciences, Niigata, Japan; Akio Nagaawasa, Div of Thoracic and Cardiovascular Surgery, Niigata Univ Graduate Sch of Medical and Dental Sciences, Niigata, Japan; Akio Nagasawa, Masatako Sugimoto, Dept of Mechanism of Aging, Natl Ctr for Geriatrics and Gerontology, Ohbji, Japan; Tohru Minamino, Dept of Cardiovascular Biology and Med, Niigata Univ Graduate Sch of Medical and Dental Sciences, Niigata, Japan

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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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The Relationship Between Obstructive Sleep Apnea and Coronary Plaque Instability: An Optical Frequency Domain Imaging Study
Takao Konishi, Hokkaido Univ, Graduate Sch of Med, Sapporo, Japan. T. Konishi: None.

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Fas Ligand- and Nitric Oxide-Releasing Stent
Mehmet Hamdi Kural, Juan Wang, Liqiong Gui, Guanxue Li, Yifan Yuan, Katherine L. Leiby, Elias Quijano, Gergei Tellides, W. Mark Saltzman, Laura E Niklason, Yale Univ, New Haven, CT. M.H. Kural: None. J. Wang: None. L. Gui: None. G. Li: None. Y. Yuan: None. K.L. Leiby: None. E. Quijano: None. G. Tellides: None. W. Saltzman: None. L.E. Niklason: 3. Other. Research Support; Significant; LEN is a founder and shareholder in Humacyte, which is a regenerative medicine company. Humacyte produces engineered blood vessels from allogeneic smooth muscle cells for vascular surgery. LEN’s spouse has equity in Humacyte, and LEN serves on Humacyte’s Board of Directors. LEN is an inventor on patents that are licensed to Humacyte and that produce royalties for LEN. LEN has received an unrestricted research gift to support research in her laboratory at Yale.

756
Sunitinib-Induced Cardiotoxicity in an Engineered Cardiac Microtissue Model With Dynamically Tunable Afterload

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β-arrestin-Biased β2-Adrenergic Receptor Signaling Mediates Novel Mechanisms of Cardiomyocyte Contractility

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Assessing the Role of Polyphenols as a Vascular Protectant Against Drug-Induced Vascular Injury
Anson Jacob Oommen, Jaime Ramirez Vick, Wright State Univ, Dayton, OH; Naron Vyavahare, Clemson Univ, Clemson, OH; Nasim Nosoudi, Wright State Univ, Dayton, OH. A. Oommen: None. J. Vick: None. N. Vyavahare: None. N. Nosoudi: None.

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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Metabolic Syndrome Impairs Cardiac Remodeling During Pregnancy in Mice

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

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

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Identification of Pathological Pathways in Hypertrophic Cardiomyopathy via Single Nuclei RNA-Sequencing
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The Highly Prevalent 25bp Intronic Deletion in MYBPC3 is Benign Under Baseline Conditions

James W McNamara, Jennifer A Schwanekamp, Univ of Cincinnati, Cincinnati, OH; Parth N Patel, Harvard Medical Sch, Boston, MA; Shiv K Viswanathan, Univ of Cincinnati, Cincinnati, OH; Mohammad Bohlooly, Katja Madesky-Bengtson, Ralph Knöll, AstraZeneca Cardiovascular and Metabolic Diseases IMED Biotech Unit, Gothenburg, Sweden; Jonathan G Seidman, Christine E Seidman, Harvard Medical Sch, Boston, MA; Sakthivel Sadayappan, Univ of Cincinnati, Cincinnati, OH

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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

Enkhsaikhan Purejav, Fuji Xu, Undral Munkhsaikhan, Neely Alberston, Ramona Sabau, Lu Lu, Jeffrey A. Towbin, Univ of Tennessee Health Sci, Memphis, TN


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

Zhao Yan, Xuedong Kang, Reshma Biniwale, Fadi Shahoud, Van Arsdell Glen, Fabiola Quintero, Nelson Stanley F, Marlin Touma, UCLA-David Geffen Sch Med, Los Angeles, CA


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Interaction of Phosphate Transport and Calcification in Placenta Vasculature

Ciara Benson, Univ of Washington, Seattle, WA; Nirmala Jayaraman, Ariel Mei, Mary C Wallingford, Tufts Medical Ctr, Boston, MA

C. Benson: None. N. Jayaraman: None. A. Mei: None. M.C. Wallingford: None.

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MYBPC3 Mutations in Indian Patients with Hypertrophic Cardiomyopathy

Varsha W Wankhade, Dept of Zoology, Pune, India

V.W. Wankhade: None.

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

Shaw-Fang Yet, Natl Health Res Insts, Zhunan, Taiwan

S. Yet: None.

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

Melanie Gartz, Zeeshan Afzal, Jennifer L. Strande, Medical Coll of Wisconsin, Milwaukee, WI

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

781
Doxorubicin-Induced Cardiotoxicity and Novel GATA4-Targeted Compounds

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T. Karhu: None. S. Kinnunen: None. V. Talman: None. H. Ruskoaho: None.

782
Human-induced Pluripotent Stem Cell-derived Cardiomyocytes as a Model for Trastuzumab-Induced Cardiac Dysfunction

Tomoya Kitani, Stanford Univ, Stanford, CA; Sang-Ging Ong, Univ of Illinois Coll of Med, Chicago, IL; Chi Keung Lam, June-Wha Rhee, Joe Z Zhang, Angelos Okonomopoulos, Ning Ma, Lei Tian, Stanford Univ, Stanford, CA; Jaecheol Lee, Sungkyunkwan Univ, Seoul, Korea, Republic of; Melinda L Telli, Ronald M Witteles, Stanford Univ, Stanford, CA; Arun Sharma, Harvard Medical Sch, Boston, MA; Nazish Sayed, Joseph C Wu, Stanford Univ, Stanford, CA


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Epidermal Contribution to Arrhythmogenic Cardiomyopathy

Arwa Kohela, Sebastiaan van Kampen, Tara Moens, Jantine Monshouwer-Kloots, Bas Molenaar, Martijn Wehrens, Hubrecht Inst, Utrecht, Netherlands; Arjan Vinp, Dept of Pathology, Univ Medical Ctr Utrecht, Utrecht, Netherlands; Huai-Sheng Vincent Chen, Dept of Med/Cardiology, Univ of California-San Diego, Utrecht, Netherlands; Eva van Rooij, Hubrecht Inst, Utrecht, Netherlands


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

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S.C. Sherratt: None. R.P. Mason: 2. Research Grant; Significant; AstraZeneca Cardiovascular and Metabolic Diseases IMED Biotech Unit, Gothenburg, Sweden; Jonathan G Seidman, Christine E Seidman, Harvard Medical Sch, Boston, MA

J.C. Wu: 1. Employment; Significant; R. Knöll: None. Patel: None. M. Bohlooly: None. J.A. Schwanekamp: None. J.W. McNamara: 2. Research Grant; Significant; J17POST336330005; J.A. Schwanekamp: None; P.N. Patel: None; S.K. Viswanathan: None; M. Bohlooly: None; K. Madesky-Bengtson: None; R. Knöll: 1. Employment; Significant; AstraZeneca. J.G. Seidman: 7. Ownership Interest; Significant; Myokardia. C.E. Seidman: 7. Ownership Interest; Significant; Myokardia. S. Sadayappan: 2. Research Grant; Significant; 17CCR33671128, R01HL130356, R01HL105826, R01AR067279, R01/R66HL139860.

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Modeling Congenital Heart Disease-Associated Variants in GATA4 Using CRISPR/Cas9 and Human Induced Pluripotent Stem Cells

Arun Sharma, Lauren Wasson, Jon Willcox, Sarah U Morton, Joshua M Gorham, Daniel M DeLaughter, Meraj Neyazi, Manuel Schmid, Radhika Agarwal, Megan Jang, Christopher N Toepfer, Tarsha Ward, Yuri Kim, Alexandre C Pereira, Steven R DePalma, Angela Tai, Seongwon Kim, David Conner, Harvard Medical Sch, Cambridge, MA; Benoit Bruneau, Gladstone Insts, San Francisco, CA; Jon G Seidman, Christine E Seidman, Harvard Medical Sch, Cambridge, MA

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A Novel Desmoplakin Mutation Contributes to Arrhythmogenic Cardiomyopathy

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Rose - A Novel Vascular Anti-inflammatory Agent

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M.C. Arokiaraj: None. E. Menesson: None.

790
Neutrophil Specialization in Blood and Heart After MI

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Genetic and Pharmacological Disruption of Epsins Attenuates Atherosclerosis

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H. Chen: None.

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

Matthew Deberge, Connor Lantz, Lisa Wilsbacher, Edward B Thorp, Northwestern Univ, Chicago, IL

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

Ali Javaheri, Geetika Bajpai, Antonino Picataggi, Smrithi Mani, Layla Foroughi, Hosannah Evie, Attila Kovacs, Carla Weinheimer, Krzysztof Hyrz, Trent Evans, Qingli Xiao, Andrea Ballabio, Jin-Moo Lee, Scot Matkovich, Babak Razani, Joel Schilling, Kory J Lavine, Abhinav Diwan, Washington Univ in St Louis, Saint, Louis, MO


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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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S. Mukherjee: None. M. Maradumane: None. S.N. Prasad: None.

796
Dysfunctional Immune Cell Clock Contributes to Heart Failure Progression

Samir Rana, Guhuza Zhaou, Tariq Hamid, Gregg Rokosh, M. Ameen Ismaili, Univ of Alabama at Birmingham, Birmingham, AL; Martin E. Young, UNIVERSITY OF ALABAMA AT BIRMINGHAM, Birmingham, AL; Sumanth D. Prabhu, Univ of Alabama at Birmingham, Birmingham, AL


800
HECT Domain Containing-3 (HECTD3) is a Novel Regulator of Cardiac Hypertrophy and Inflammation

Ashrav Y Rangrez, Ankush Borlepaawar, Nesarin Schmiedel, Lynn Christen, Anushka Deshpande, Alexander Bernt, Manju Kumari, Anca Remes, Univ Medical Ctr Kiel, Kiel, Germany; Andreas Helbig, Christian-Albrechts Univ Kiel, Kiel, Germany; Andreas Jungmann, Univ Medical Ctr Heidelberg, Heidelberg, Germany; Samuel Sossalla, Univ Medical Ctr Regensburg, Regensburg, Germany; Andreas Tholey, Christian-Albrechts Univ Kiel, Kiel, Germany; Oliver Mueller, Dirk Frank, Norbert Frey, Univ Medical Ctr Kiel, Kiel, Germany


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. Kashif: None. S. Patel: None. L. Ganesan: None. W. Lafuse: None. M. Rajaram: None.

802
Cardiomyocyte-derived Exosomal MicroRNAs Regulates Post-Infarction Inflammation and Myofibroblast Phenocrversion

Gaetano Santulli, AECOM, New York, NY; Celestino Sardu, Vanvitelli Univ, Naples, Italy; Jun Shu, AECOM, New York, NY; Alessandro Matarese, Ospedale dei Colli, Naples, Italy; Xujun Wang, AECOM, New York, NY

G. Santulli: None. C. Sardu: None. J. Shu: None. A. Matarese: None. X. Wang: None.
Abstracts (continued)

803
Sepsis-induced Acute Heart Failure is Driven by MEF2D-dependent Transcription
Richard Schell, Felix Alban, Clemens Haslinger, Philipp Theis, Hugo A Katus, Johannes Backs, Heidelberg Univ Hosp, Heidelberg, Germany

804
Elimination of Cells Expressing Senescence Associated Glycoprotein Attenuates Theatherosclerotic Diseases
Masayoshi Suda, Ipppei Shinizui, Yohko Yoshida, Goro Katsumi, Yuka Hayashi, Ryutaro Ikekami, Ayako Nagasawa, Masaaki Nakao, Ryo Fruuchi, Takuya Ozawa, Tohru Minamino, Niigata Univ, Niigata, Japan

805
A Toll-like Receptor 9 Inhibitor Prevents the Development and Progression of Sterile Inflammatory Heart Failure Induced by Mitochondrial DNA Accumulation
Hiromichi Ueda, Manabu Taneike, Dept of Cardiovascular Med Osaka Univ Graduate Sch of Med, Osaka, Japan; Kinya Otsu, Sch of Cardiovascular Med and Sciences, King’s Coll London British Heart Fndn Ctr of Excellence, London, United Kingdom; Yasushi Sakata, Dept of Cardiovascular Med Osaka Univ Graduate Sch of Med, Osaka, Japan

806
PD-1 in Cardiac Immune Responses After Ischemic Injury or Transverse Aortic Constriction
Daniel A Zlotoff, Chun Yang Xiao, Robert M. H. Grange, Yoshiko Iwamoto, Massachusetts General Hosp, Boston, MA; Gordon Freeman, Dana Farber Cancer Inst, Boston, MA; Anthony Rosenzweig, Massachusetts General Hosp, Boston, MA
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, Originmed. A. Rosenzweig: None.

807
Rap Ablation as a Treatment to Target Cardiac Inotropy via L-type Calcium Channel Function
Brooke Ahern, Bryana Levitan, Sudhakar Veeranki, Mhir Shah, Nemat Ali, Andrea Sebastian, Univ of Kentucky, Lexington, KY; Jiaying Li, Julian E Stelzer, Case Western Reserve Univ, Cleveland, OH; Doug Andres, Jonathan Satin, Univ of Kentucky, Lexington, KY

808
Functional Characterization of a Novel Scn5a Mutation Associated with the Brugada Syndrome
Anthony Frosoio, David Molla, Giorgia Bertoli, Claudia Bazzini, Raffaella Milanesi, Univ degli Studi di Milano, Milano, Italy; Francesca Gennaro, Mazzoni Hosp, Dept of Cardiology, Ascoli Piceno, Italy; Andrea Barbuti, Annalisa Bucchi, Univ degli Studi di Milano, Milano, Italy; Luciano Moretti, Procolo Marchese, Mazzoni Hosp, Dept of Cardiology, Ascoli Piceno, Italy; Dario DiFrancesco, Mirko Baruscotti, Univ degli Studi di Milano, Milano, Italy

809
Chronic Testosterone Deficiency Increases Late Inward Sodium Current in Ventricular Myocytes from Aging Male C57BL/6 Mice
Stefan Heinze-milne, Shubham Banga, Omar Ayaz, Susan Howlett, Dalhousie Univ, Halifax, NS, Canada
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
Olivia T Ly, Seock Won Youn, Grace Brown, Liang Hong, Arvind Sridhar, Meihong Zhang, Erin Lambers, Salman Khetani, Dawood Darbar, Univ of Illinois COM, Chicago, Chicago, IL

811
The Role of Mitochondrial Stress and the Late Sodium Current in Ibrutinib-Mediated Atrial Fibrillation
Ambili Menon, Brandon Chalzain, Liang Hong, Arvind Sridhar, Meihong Zhang, Dawood Darbar, Univ of Illinois at Chicago, Chicago, IL
A. Menon: None. B. Chalzain: 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
Thassio Mesquita, Jae Hyung Cho, Rui Zhang, Joshua I. Goldhaber, Eduardo Marbán, Eugenio Cingolani, Cedars-Sinai Heart Inst, Los Angeles, CA

813
Downregulation of the Cardiac Sodium Channel Nav1.5 Mediates Obesity-Induced Atrial Fibrillation
Arvind Sridhar, Mark McCauley, Liang Hong, Ambil Menon, Meihong Zhang, Univ of Illinois, Chicago, Chicago, IL; Jiayle Yan, Rush Univ, Chicago, IL; Seock-Won Youn, Iven Bezerra da Silva, Marcelo Bonini, Jalees Rehman, Dawood Darbar, Univ of Illinois, Chicago, Chicago, IL

814
Trpv4 Deletion in Endothelium Protects Heart Against Pressure Overload Induced Hypertrophy
Ravi K Adapala, Anantha K Karugula, Vahagn Ohanyan, Nina Lenkey, North East Ohio Medical Univ, Rootstown, OH; Sajalia Paruchuri, Univ of Akron, Akron, OH; William M Chilian, Charles K Thodeti, North East Ohio Medical Univ, Rootstown, OH
Reduced Cardiac Transmembrane Protein 65 Resulted in Dilated Cardiomyopathy and Progressive Cardiac Fibrosis in vivo

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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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820
Enoxaparin Reverses Ventricular Tachycardia and Torsades de Pointes in Rat Isolated Heart Model

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821
Experimental Verification of Value of T_{peak}-T_{end}Interval in Ventricular Arrhythmia Inducibility in Early Repolarization Syndrome Model

Namsik Yoon, Seo Na Hong, Hyung Ki Jeong, Ki Hong Lee, Hyung Wook Park, Jeong Gwan Cho, Choonnam Natl Univ Hosp, Gwangju, Korea, Republic of


822
Enhanced Left Ventricle TGFβ2 Signaling in a Model of Dilated Cardiomyopathy

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A. Antolic: None. A.B. Alsalem: None. D. Lee: None. Z. Jiao: None. M.A. Burke: None.

823
The Extracellular Matrix Component, Hyaluronan, Provokes a Pro-Inflammatory Phenotype in Macrophages

Timothy Ndagj Audam, Sujith Dassanayaka, Andrea Jurovic, Bethany Long, Kenneth R Brittan, Marcin Wysoczynski, Steven P Jones, Univ of Louisville, Louisville, KY


824
Thromboxane/Prostanoid Receptor Activation Increases Calpain-Mediated Proteolysis and Alters Calcium Handling and Fibrosis Following Right Ventricular Pressure Overload

James D West, Kyungsoo Kim, Tosho Suzuki, Christy Moore, Bjorn C Knollmann, Erica J. Carrier, Vanderbilt Univ Medical Ctr, Nashville, TN

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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826
Histone Deacetylase Inhibition Improves Heart Failure with Preserved Ejection Fraction Cardiopulmonary Phenotype and Induces Metabolomic Switch

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827
Single-cell Transcriptomic Profiling Provides Insights Into Disease-related Processes During Hypertrophic Cardiomyopathy

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828
The Functional Role of Myofibroblast-Expressed Smooth Muscle Alpha Actin in Post-Myocardial Infarction Tissue Healing
Xing Fu, Qiangan Liu, Leshan Wang, Louisiana State Univ Ag Ctr, Baton Rouge, LA; Jeffery Molkentin, Cincinnati Children’s Hosp, Cincinnati, OH
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
Nobuaki Fukuma, Eiki Takimoto, Kazutaka Ueda, Pangyen Liu, Univ of Tokyo Japan, Hongo Buku-ku 7-3-1 Tokyo, Japan; Yuxin Li, Nihon Univ Sch of Med, 30-1 Oyoguchi Kami-cho Itabashi-ku Tokyo, Japan; Kensa Ke Noma, Res Inst for Radiation Biology and Med, 1-2-3 Kasumi, Minami-ku Hiroshima City Hiroshima, Japan; Yukio Hiroi, Natl Ctr for Global Health and Med, 1-21-1 Toyama Shinjuku-ku Tokyo, Japan; James K Liao, Duchossois Ctr for Advanced Med (DCAM) - Hyde Park, 5758 S. Maryland Ave. Chicago, IL 60637, IL; Issi Komuro, Univ of Tokyo Japan, Hongo Buku-ku 7-3-1 Tokyo, Japan

835
Development of Molecular Targeted Therapy Against Right Ventricular Failure: Evaluation by Transcriptome and in vivo Analysis
Shogo Ito, Shinshuke Yuasa, Jin Komuro, Toshiori Katsuki, Mai Kimura, Yosihiko Kishino, Dai Kusumoto, Hisayuki Hashimoto, Dept of Cardiology, Keio Univ Sch of Med, Tokyo, Japan; Yoshiiro Fukumoto, Div of Cardiovascular Med, Kurume Univ Sch of Med, Kurume, Japan; Keiichi Fukuda, Dept of Cardiology, Keio Univ Sch of Med, Tokyo, Japan

836
Regulation of Bmp7 and Ctgf Suppresses Dilated Cardiomyopathy and Cardiac Fibrosis
Jianming Jiang, Chia Yee Tan, Natl Univ of Singapore, Singapore, Singapore
J. Jiang: None. C. Tan: None.

837
Different Disease States in Heart Have Distinct Cardiac Interstitial Cells Contributing to Fibrosis
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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
Navid Koleini, Barbara E Nickel, Raghu S Nagalingam, Natalie M Landry, Robert R Fandrich, Ian M Dixon, Michael Czubryt, Peter A Cattini, Elissavet Kardami, Univ of Manitoba, Winnipeg, MB, Canada

839
Sphingosine 1-Phosphate Receptor 1 in Cardiomyocytes Protects Against Cardiac Fibrosis
Desiree F Leach, Jayne Wolfe, Ryan Jorgensen, Bianca Lavelle, Sanjiv Shah, Lisa Wilsbacher, Northwestern Univ Feinberg Sch of Med, Chicago, IL

840
Epicardial Prestrained Confinement and Residual Stresses: A Newly Observed Heart Ventricle Confinement Interface
Xiaodan Shi, Univ of Texas at Arlington, Arlington, TX; Yue Liu, Brown Univ, Providence, RI; Katherine M Copeland, Sara R McMahan, Univ of Texas at Arlington, Arlington, TX; Song Zhang, J. Ryan Butler, Mississippi State Univ, Mississippi State, MS; Yi Hong, Michael Cho, Univ of Texas at Arlington, Arlington, TX; Pietro Bajona, Univ of Texas Southwestern Medical Ctr, Dallas, TX; Huajian Gao, Brown Univ, Providence, RI; Jun Liao, Univ of Texas at Arlington, Arlington, TX

841
Loss of S-nitrosylation of G Protein-Coupled Receptor Kinase 2 Leads to Cardiovascular Dysfunction With Aging

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
Christian U Oeing, Mark J Ranek, Brittany L Dunkerley-Eyring, David A Kass, Johns Hopkins Univ, Baltimore, MD

844
β3-pectrin Regulates Cardiac Fibroblast Phenotype, Fibrosis, and Cardiac Function
Nehal J. Patel, Drew M. Nassal, Benjamin W. Scandling, Amara D. Greer-Short, Sathya D. Unudurti, Xianyao Xu, Peter J. Mohler, Keith J. Gooch, Thomas J. Hund, The Ohio State Univ, Columbus, OH
Abstracts (continued)

845
Distinctive Inflammatory and Fibrotic Signature of Extracellular Vesicles from Epicardial Fat of Patients with Atrial Fibrillation

Olga Shaivot-Tepet, Elton Ram, La-Paz Levin-Kotler, Nil Naftali-Shani, Jonathan Leor, Sheba Medical Ctr, Tel Hashomer, Israel


The Effects and Mechanisms of Pirydostigmine 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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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 Apopharma. D. Manca: 1. Employment; Significant; Employed by Apopharma. J. Connelly: 1. Employment; Significant; Employed by Apopharma. M. Spino: 1. Employment; Significant; Employed by Apopharma. 7. Ownership Interest; Modest; A joint patent application was filed by ApoPharma and Sunnybrook Research Institute. M. Spino: 1. Employment; Significant; Employed by Apopharma. 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-crystallin-induced Proteotoxicity

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850
Metabolic Landscape of Human Heart Failure


852
The Pathological Role of Coagulation Factors in Promoting Brown Adipose Tissue Dysfunction and Systemic Metabolic Disorder in Obesity

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853
GPX4 Gene Expression is Dose-responsive to Doxorubicin Exposure in iPSC-Cardiomyocytes and Correlated with Mitochondrial Function

Monica E. Reyes, Rashida A. Callender, UT MD Anderson Cancer Ctr, Houston, TX; Jianzhong Ma, Megan L. Grove, Alanna C. Morrison, UT Health Science Ctr at Houston, Houston, TX; Michelle A.T. Hildebrandt, UT MD Anderson Cancer Ctr, Houston, TX 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

Sehwan Jang, Univ of Puerto Rico Medical Sciences Campus, San Juan, PR S. Jang: None.
Abstracts (continued)

855
Chf1 Haploinsufficiency in Heart Impairs Mitochondrial Oxidative Capacity and Leads to Aggravated Cardiac Dysfunction in Ioprogren Infusion Model
Seon-Ah Jin, Hee Jung Seo, Jin-Ok Jeong, Chungnam National University, Daejeon, Korea, Republic of S. Jin: None. H. Seo: None. J. Jeong: None.

856
Mitochondrial Protein Kinase B (akt) Translocation Mediates Insulin-stimulated Cardiac Glucose Oxidation

857
MCUB Regulates the Molecular Composition of the Mitochondrial Calcium Uniporter Channel During Cardiac Stress to Limit Mitochondrial Calcium Overload

858
NAD(H) Redox Imbalance in the Heart Accelerates Diabetic Cardiomyopathy
Ying Ann Chiao, Christine Light, Oklahoma Medical Res. Fndn, Oklahoma City, OK; Rong Tian, Univ of Washington, Seattle, WA; Junichiro Sadoshima, Rutgers NJMS, Newark, NJ; Chi Fung Lee, Oklahoma Medical Res. Fndn, Oklahoma City, OK Y. Chiao: None. C. Light: None. R. Tian: None. J. Sadoshima: None. C. Lee: None.

859
Sepsis-Induced Cardiomyopathy is Caused by Mitochondrial Dysfunction Due to Protein Kinase C (PKC) Delta Activation

860
Functional Characterization of a Novel Human Heart-specific Microprotein With a Potential Mitochondrial Localization and Role in Sarcomere Dynamics
Michael Benedikt B Muecke, Jana F Schulz, Valentin Schneider, Max-Delbrück-Ctr for Molecular Med, Berlin, Germany; Arun Sharma, Christopher N Toepfer, Harvard Medical Sch, Dept of Genetics, Boston, MA; Sebastiaan van Heesch, Max-Delbrück-Ctr for Molecular Med, Berlin, Germany; Jonathan G Seidman, Christine E Seidman, Harvard Medical Sch, Dept of Genetics, Boston, MA; Norbert Hüner, Max-Delbrück-Ctr for Molecular Med, Berlin, Germany 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. Hüner: None.

861
Inner Mitochondrial Collapsing in Response to Acute Overstretch of Rat Ventricular Papillary Muscles

862
SGK-1 Metabolically Reprograms VSMC Energy Metabolism by Modulation of Substrate Utilization and Mitochondrial Structure

863
Pathological Roles of Senometabolites in Cardiovascular Disorders
Ippel Shimizu, Yahiko Yoshida, Ryutaro Ikegami, Tohru Minamino, Nigata Univ, Nigata, Japan I. Shimizu: 2. Research Grant; Significant; AMED, The Nato Foundation, Astellas Foundation for Research on Metabolic Disorders, Takeda Science Foundation, JSPS KAKENHI, Uehara Memorial Foundation, Daichi Sankyo Foundation of Life Science, TERUMO FOUNDATION FOR LIFE SCIENCES and ARTS, Japan Diabetes Foundation, Grant From Japan Cardiovascular Research Foundation, MSD Life Science Foundation, Public Interest Incorporated Foundation, Takeda grant for Nigata University Medical Research, Japan Heart Foundation Research Grant, ONO Medical Research Foundation, The Sumitomo Foundation, The Nakajima Foundation, Suzuken Memorial Foundation, Mochida Memorial Foundation for Medical & Pharmaceutical Research, Manpei Suzuki Diabetes Foundation. Y. Yoshida: None. R. Ikegami: None. T. Minamino: None.

864
Mitochondrial Morphology During Stress is Regulated by GJA1-20k Interaction With Actin
Daisuke Shimura, Rachel Baun, Shaohua Xiao, TingTing Hong, Robin Mark Shaw, Cedars-Sinai Medical Ctr, Los Angeles, CA D. Shimura: None. R. Baun: None. S. Xiao: None. T. Hong: None. R.M. Shaw: None.

865
The E3 Ubiquitin Ligase Parkin Regulates Metabolism From the Nucleus

866
Cardiac-specific Deletion of General Control of Amino-Acid Synthesis 5-like 1 Regulates Fatty Acid Oxidation in Diet Induced Obesity

867
NAD+ Repletion Reverses HFpEF by Attenuating Myocardial Metabolic Dysfunction
Dan Tong, Gabriele G Schiattarella, Nan Jiang, Francisco Altamirano, Pamela A Szewda, Abdallah Elwasany, Univ of Texas Southwestern Medical Ctr, Dallas, TX; Dong Ik Lee, Johns Hopkins Sch of Med, Baltimore, MD; Luke I Szewda, Univ of Texas Southwestern Medical Ctr, Dallas, TX; David A Kass, Johns Hopkins Sch of Med, Baltimore, MD; Thomas G Gillette, Joseph A Hill, Univ of Texas Southwestern Medical Ctr, Dallas, TX D. Tong: None. G.G. Schiattarella: None. N. Jiang: None. F. Altamirano: None. P.A. Szewda: None. A. Elwasany: None. D.I. Lee: None. L.I. Szewda: None. D.A. Kass: None. T.G. Gillette: None. J.A. Hill: None.
Abstracts (continued)

868 A Cardiac Specific Branched Chain Aminotransferase Deletion Increases Insulin Stimulated Glucose Oxidation in the Mouse Heart
Golam M Uddin, Simran Phervani, Cory S Wagg, Keshav Gopal, Rami A. Batran, Liyan Zhang, Yikuan Wu, Naayema Hussaini, Sonia Rawat, John R. Ussher, Gary D Lopachuk, Univ of Alberta, Edmonton, AB, Canada

869 Cysteine-based Redox Regulation of Soluble Guanylyl Cyclase
Chuanlong Cui 07103, Maryam Alapa, Rutgers Univ Sch of Graduate Studies, Newark, NJ; Ping Shu, Rutgers Univ New Jersey Medical Sch, Newark, NJ; Vlad Khodolodvych, Rutgers, New Brunswick, NJ; Hong Li, Annie V Beuve, Rutgers Univ New Jersey Medical Sch, Newark, NJ
C. Cui: None. M. Alapa: None. P. Shu: None. V. Khodolodvych: 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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871 Chronic Activation of Right Atrial Intracardiac Cholinergic Neurons Improves Cardiac Function in an Animal Model of Heart Failure
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J.R. Dyavanapalli: None.

872 Inhibition of Spinal Astrocytes Activation Attenuates Myocardial Ischemia-Reperfusion Injury by Regulating NGF/TRPV1 Nociceptive Signaling
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S. He: None. R. Liu: None. L. Zhang: None. Y. Zhang: None.

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, Koheksue Shirakawa, Atsushi Anzai, Jin Endo, Masaharu Kataoka, Fukuda Keiichi, Motoaki Sano, Keio Univ Sch of Med, Tokyo, Japan

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

875 Cardiomyocyte Derived DDT Protects Against Myocardial Infarction Induced Heart Failure
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Y. Ma: None. X. Hu: None. X. Wu: None. D. Pfau: None. L. Leng: None. K. Bedi: None. K. Margulies: None. R. Bucala: None. L. Young: None.

876 Chronic GPER1 Cardioprotection in H9c2 Myoblasts is Mediated by an MST1-YAP Pathway and Mitochondrial Function and Dynamics
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N. Madunwge: 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. Sadoshina: None.

878 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.

879 The Role of Sialidase Neu3 in the Cardiac Response to Ischemia and Reperfusion Injury
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880 Intramythmic Thymic Nerve Cell Transplants Increase Endothelium-Dependent Relaxation in the NZBWF1 Systemic Lupus Erythematosus Mouse Model
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881 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.

882 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.

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Alexis Stamatiakos, Lucia Vojtech, Ethan Knight, Lianxiang Bi, Bradley Wacker, Chongren Tang, David Dichek, Univ of Washington, Seattle, WA


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MicroRNA-448 Regulates the Cardiac Sodium Channel During Ischemia

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G. Kang: None. A. Xie: None. S. Dudley: None.

894
Inhibition of Long Noncoding RNA IncExACT1 Induces Physiological Cardiac Hypertrophy and Protects Against Pathological Hypertrophy

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H. Li: None. X. Liu: None. C. Xiao: None. G. Li: None. A. Yeri: None. A. Rosenzweig: None.

895
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900 Troponin I Tyrosine 26 Phosphorylation Accelerates in vivo Myocardial Relaxation
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E.A. Brundlage: None. V. Shetttigar: None. Y.H. Lin: None. B. Agatista-Boyle: None. M.Y. Jeong: None. M.T. Zio: None. B.J. Biesiadecki: 2. Research Grant; Significant; NIH R01. Other: Modest; Life Sciences Associate Editor.

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

902 Leveraging Natural Cardiomyocyte Variability to Investigate Downregulation of β-1 Adrenoceptors Following Dobutamine Treatment
J. Alexander Clark, Jonathan Weiss, Stuart Campbell, Yale Univ, New Haven, CT
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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904 Disrupted Mechanobiology Links the Molecular and Cellular Phenotypes in Familial Dilated Cardiomyopathy
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905 Length Dependent Activation in Porcine Cardiac Myofilaments is Modulated by Mavacurman
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906 Age-Dependent Modifications in Cardiomyofilament Proteins are Graded by Overall Health, Measured as Frailty, in Aging Male and Female C57BL/6 Mice
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907 Understanding Cardiomyocyte Mechanosensing Utilizing CRISPR-Cas9 Based Screening Methods

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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A.M. Pettinato: None. F. Ladha: None. K. Thakar: None. T. Hinson: None.

911 New Promoters to Improve the Efficiency of Cardiac Gene Therapies Using 2 Deoxy-ATP
Kalen Zeeh Robeson, Farid Moussavi-Harami, Jennifer Davis, Michal Regnier, Univ of Washington, Seattle, WA
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, R01AP067279, RO1/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
Audrey N Chang, UT Southwestern Medical Ctr, Dallas, TX
A.N. Chang: None.

917
Actively Blocking Nuclear Localization of G Protein-Coupled Receptor 5 Blunts Hypertrophy and Heart Failure After TAC

918
Pre-B-cell Leukemia Homeobox Interacting Protein 1 is a Novel Regulator of Growth Signaling in the Heart
Kelly M Grimes, Anna Pyo, Jeffery D Molkentin, Cincinnati Children’s Hosp Medical Ctr, Cincinnati, OH
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
Haipeng Guo, Yao Wei Lu, Zhiqiang Lin, Zhanpeng Huang, Jianming Liu, Xiaoyun Hu, Yi Wang, Tiago Fernandes, Yuxuan Guo, Dept of Cardiology, Boston Children’s Hosp, Harvard Medical Sch, Boston, MA; Jenny L.-C Lin, Jim J.-C Lin, Dept of Biology, Univ of Iowa, Iowa City, IA; Francisco Naya, Dept of Biology, Boston Univ, Boston, MA; William T Pu, Da-Zhi Wang, Dept of Cardiology, Boston Children’s Hosp, Harvard Medical Sch, Boston, MA

920
Mutual Potentiation Between Myofibril Assembly and Serum Response Factor in Cardiomyocyte Maturation
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Y. Guo: None. B. Jardin: None. I. Sethi: 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

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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L. Pohjolainen: None. R. Solanki: None. H. Ruskoaho: None. V. Talman: None.

925
Insulin Inhibits β-adrenergic Receptor Resensitization Through PI3K/Insulin Inhibits β-adrenergic Receptor Resensitization Through PI3K
Anita Sahu, Maradumane Mohan, Sathymangla V. Naga Prasad, Lerner Res Inst, Cleveland Clinic, Cleveland, OH
A. Sahu: None. M. Mohan: None. S. Prasad: None.

926
Regulation of Fibrosis by Phospholipase C in Cardiac Fibroblasts
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L.M. Brown: None. A.V. Smrcka: None.

930
Aerobic Dose Intensity and the Human Exercise Plasma Proteome
James Sawalla Guseh, Timothy W Churchill, Ashish Yeri, Claire Lo, Marcel Brown, Anthony Rosenzweig, Aaron Bagggish, Massachusetts General Hosp, Boston, MA

931
Compensatory Response of Perivascular Adipose Tissue to Vascular Dysfunction in Metabolic Syndrome Rats Involves Apelin
Satomi Kagota, Miho Shimari, Kana Maruyama-Fumoto, Saki Iwata, Kazumasa Shinozuka, Mukogawa Women’s Univ, Nishinomiya, Japan

932
Translated Alternative Isoforms Coincide With Disordered Sequences in the Cardiac Proteome
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E. Lau: None. Y. Han: None. D. Williams: None. M. Lam: None.

933
Integrated Omics Analysis of Diabetic Heart Failure in Human Myocardium
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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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J. Liu: None.

943
Circulating Mircnome in Obese and Lean Heart Failure Patients: A Case-control Study

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 Though Protein S-nitrosylation
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