



American Heart Association®

Basic Cardiovascular Sciences

2020 Scientific Sessions
Emerging Opportunities in Cardiovascular Diseases
July 27-30, 2020
Virtual Event

Final Program Agenda
(All times in Central Daylight Time)

MONDAY, July 27

12:30 – 1:00 pm (CDT)

BCVS 2020 Scientific Sessions: Opening Welcome

12:30 **Opening Remarks from the President of the American Heart Association**
Mitch Elkind, MD, AHA President, New York, New York

12:45 **Welcome Remarks from the BCVS Council Chair**
Elizabeth McNally, MD, PHD, BCVS Council Chair, Chicago, Illinois

1:00–2:00 pm

Concurrent Session 1A

Beyond the Heart: Systemic Effects of Pathogenic Cardiac Remodeling

Moderator: Gregory Aubert, MD, Chicago, Illinois

1:00 **Manipulating Gene Regulation to Treat Heart Disease**
Deepak Srivastava, MD, San Francisco, California

1:15 **HIPK2, a Novel Regulator of Cardiac Function**
Hind Lal, PhD, Birmingham, Alabama

1:30 **Junctophilin-2 In the Heart: From Local E-C Coupling to Systemic Cardiac Protection**
Long-sheng Song, MD, Iowa City, Iowa

1:45 **Q&A**

1:00 – 2:00 pm

Concurrent Session 1B

Cutting-edge Approaches to Targeting Complex Cardiomyopathies

Moderator: Jil Tardiff, MD, PhD, Tucson, Arizona

1:00 **Drugs and HCM mutations modulating myosin-binding protein C binding to actin identified by a high-throughput fluorescence lifetime-based assay**

Brett Colson, PhD, Tucson, Arizona

1:15 **Targeting Protein Degradation of Myosin Binding Protein C in the Context of Loss-of-Function Variants that Cause Hypertrophic Cardiomyopathy**
Sharlene Day, MD, Philadelphia, Pennsylvania

1:30 **Visualizing metabolic flux remodeling in diseased hearts using stable isotope kinetics**
Andrew Carley, PhD, Columbus, Ohio

1:45 **Q&A**

2:00 – 3:00 pm

Moderated Poster Session 1A: Sarcomeric Function & Contractility

Poster Discussant: Danish Sayed, PhD, Newark, New Jersey

MP 100

Scalable Functional Classification Of Heart Failure-associated Genetic Variants In Cardiac Troponin T

Anthony M PETTINATO, Fera A Ladha, Univ of Connecticut, Farmington, CT; David Mellert, Nicholas Legere, Rachel Cohn, The Jackson Lab, Farmington, CT; Robert Romano, Univ of Connecticut, Farmington, CT; Ketan Thakar, Yu-Sheng Chen, The Jackson Lab, Farmington, CT; John Travis Hinson, Univ of Connecticut, Farmington, CT

MP 101

Functional Maintenance Of The Sarcomere Requires Bag3-dependent Autophagy

Thomas G Martin, Loyola Univ Chicago, Oak Park, IL; Arthur M Feldman, Temple Univ Sch of Medicine, Philadelphia, PA; Monte S Willis, Indiana Univ Sch of Medici, Indianapolis, IN; Jonathan A Kirk, Loyola Univ Chicago, Maywood, IL

MP 102

Skeletal Muscle Alpha Actin Acetylation Enhances Myosin Binding And Increases Calcium Sensitivity *In Vitro*

Samantha S Romanick, Allison Matsumura, Travis Stewart, Kianna Boc, Univ of Nevada Reno, Reno, NV; Jonathan Baker, Bradley S Ferguson, UNIVIVERSITY OF NEVADA RENO, Reno, NV

MP 103

Methylglyoxal Modifications On Myofilament Proteins Caused By Diabetes Block Heart Failure Drug Targets Through Changing Tropomyosin Position

Maria Papadaki, Theerachat Kampaengsri, LOYOLA UNIVERSITY CHICAGO, Maywood, IL; Samantha Barrick, Washington Univ, St Louis, MO; Stuart Campbell, Yale Univ, New Haven, CT; Michael Greenberg, Washington Univ, St Louis, MO; Jonathan A Kirk, Loyola Univ Chicago, Maywood, IL

MP 104

Phosphodiesterase 1 Modulates Sarcolemmal CAMP To Increase The L-type Calcium Channel Activity And Induce Cardiomyocyte Contraction

Grace K Muller, Johns Hopkins Sch of Med, Baltimore, MD; Joy Song, Johns Hopkins Univ, Baltimore, MD; Vivek Jani, Johns Hopkins Univ - MSTP, Baltimore, MD; Yuejin Wu, Johns Hopkins Univ - MSTP, Baltimore, MD, Baltimore, MD; Manuela Zaccolo, Univ of Oxford, Oxford; David Alan Kass, JOHNS HOPKINS MEDICAL INST, Baltimore, MD

MP 105

Python Post-prandial Cardiac Adaptation Is Supported By Enhanced Metabolism, Reduced Sarcomere Passive Tension, And Epigenetic Remodeling

Claudia Crocini, Univ of Colorado Boulder, Boulder, CO; Kc Woulfe, UNIVERSITY OF COLORADO, Aurora, CO; Cierra J Walker, Christopher D Ozeroff, Univ of Colorado Boulder, Boulder, CO; leslie A leinwand, Univ of Colorado, Boulder, CO

2:00 – 3:00 pm

Moderated Poster Session 1B: Ion Channels and Arrhythmias

Poster Discussant: Ravi Shah, MD, Boston, Massachusetts

MP110

Inhibition Of The Unfolded Protein Response Reduces Arrhythmic Risk After Myocardial Infarction

Man Liu, Univ of Minnesota, Minneapolis, MN; Hong Liu, UNIVERSITY OF MINNESOTA, Minneapolis, MN; Preethy Parthiban, Univ of Minnesota, Minneapolis, MN; Guangbin Shi, Rhode Island Hosp, Providence, RI; Gyeoung-Jin Kang, Feng Feng, Univ of Minnesota, Minneapolis, MN; Anyu Zhou, Rhode Island Hosp, Providence, RI; Lianzhi Gu, Univ of Minnesota, Minneapolis, MN; Alena Talkachova, Univ of Minnesota, Minneapolis, MN, Minneapolis, MN; Samuel C Dudley Jr., Univ of Minnesota, Minneapolis, MN

MP111

Loss Of Myosin Binding Protein H-like Causes Cardiacconduction Abnormalities

David Y Barefield, Ibrahim Tahtah, Jordan Sell, Northwestern Univ, Chicago, IL; Michael Broman, Brigitte Laforest, Univ of Chicago, Chicago, IL; Sean Yamakawa, Megan Puckelwartz, Northwestern Univ, Chicago, IL; Andrew Wasserstrom, Northwestern univ, Chicago, IL; Elizabeth M McNally, NORTHWESTERN UNIVERSITY, Chicago, IL

MP 112

Optogenetic Manipulation Of Macrophage Electrical Excitability Modulates Cardiac Rhythm In Developing Zebrafish

Shannon E Martin, Jessica Plavicki, Brown Univ, Providence, RI

MP 113

Protein Hyperacetylation Mediates Bradyarrhythmia In Mice With Mitochondrial Disease

Dao-Fu Dai, Univ of Iowa, Iowa City, IA; Yi Chu, Jin-Young Yoon, UNIVERSITY IOWA, Iowa City, IA

MP 114

Cardiotropic Adenovirus Increases Arrhythmia Susceptibility During Acute Infection

Rachel L Padget, D. Ryan King, Virginia Tech, Blacksburg, VA; Michael D North, Mira N Tanenbaum, Virginia Tech Carilion Sch of Med, Roanoke, VA; Patrick J Calhoun, Virginia Tech,

Blacksburg, VA; Gregory S Hoeker, Fralin Biomedical Res Inst at VTC, Roanoke, VA; Steven Poelzing, James W Smyth, Virginia Tech, Blacksburg, VA

MP 115

Transcriptional Patterning Of The Ventricular Cardiac Conduction System

Ozanna Burnicka-Turek, Michael Broman, Jeffrey D Steimle, UNIVERSITY OF CHICAGO, Chicago, IL; Bastiaan Boukens, Biomedical Engineering, St Louis, MO; Nataliya B Petrenko, Univ of Pennsylvania, Philadelphia, PA; Kohta Ikegami, Xinan H Yang, UNIVERSITY OF CHICAGO, Chicago, IL; Marcelo A Nobrega, Chicago, IL; Michael J Rust, UNIVERSITY OF CHICAGO, Chicago, IL; Vickas V Patel, GlaxoSmithKline, Collegeville, PA; Igor Efimov, GlaxoSmithKline, Collegeville, PA, Washington, DC; Ivan P Moskowitz, UNIVERSITY OF CHICAGO, Chicago, IL

3:00 – 4:00 pm

Concurrent Session 2A

Cardiovascular Risk Factors-Nicotine Use, Diet and Physical Activities as Modulators

Moderator: Loren Wold, PhD, Columbus Ohio

3:00 **Cardiovascular Health Impact of Electronic Cigarettes**
Aruni Bhatnagar, PhD, Louisville, Kentucky

3:15 **Cardiovascular Health Impact of Electronic Cigarettes**
Naomi Hamburg, MD, Boston, Massachusetts

3:30 **Cardiac effects of chronically inhaled nicotine**
Jason Gardner, PhD, New Orleans, Louisiana

3:45 **Q&A**

3:00– 4:00 pm

Concurrent Session 2B

Covid-19 and Cardiovascular Disease

Moderator: Mina Chung, MD, Cleveland, Ohio

3:00 **Panelists:**
Covid-19 and the Heart
Eduardo Marban, MD, Los Angeles, California

Sanjum Sethi, MD, New York, New York

Deep learning using chest radiographs to predict COVID-19 outcomes
Michael T. Lu, MD, Boston, Massachusetts

3:45 **Q&A**

4:00 – 5:00 PM

ACS Japanese: Inflammation and Cardiac Remodeling in Heart Failure

Moderator: Junichi Sadoshima, MD, Newark, New Jersey

4:00 **CaMK-NRSF-GNAO1 transcriptional circuits participates in the pathological cardiac remodeling**

Hideaki Inazumi, MD, Kyoto, Japan

4:15 **Mechanosensation by Cardiac Macrophages Orchestrates Cardiac Homeostasis**

Jun Matsuda, MD, PhD, Tokyo, Japan

4:30 **Elimination of cells expressing Senescence associated glycoprotein (SAGP) attenuates atherosclerotic diseases**

Masayoshi Suda, PhD, Nigata, Japan

4:45 **Q&A**

4:00 – 5:00 pm

ACS Korean: Cellular and Molecular Mechanisms of Heart Failure

Moderator: Young-sup Yoon, MD, Atlanta, Georgia

4:00 **Adhesion GPCR, Latrophilin-2, induces cardiac differentiation through CDK5, contributing to repair after myocardial infarction**

Hyun-jai Cho, MD, Seoul, Korea

4:15 **Nanovesicles derived from IONP-MSCs for cardiac repair**

Hun-jun Park, MD, Seoul, Korea

4:30 **Postnatal Maturation of PSC-Derived Cardiomyocytes**

Chulan Kwon, PhD, Baltimore, Maryland

4:45 **Q&A**

TUESDAY, July 28

10:00 – 11:00 AM (CDT)

Concurrent Session 3A

Molecular Predictors & Markers of Heart Failure Progression

Moderator: Kristine Deleon-Pennell, PhD, Charleston, South Carolina

- 10:00 **Single-cell analysis to dissect heart failure biology**
Seitaro Nomura, MD, Tokyo, Japan
- 10:15 **Top-down proteomics for understanding and diagnosis of heart diseases**
Ying Ge, MD, Madison, Wisconsin
- 10:30 **Pathology-dependent protein-protein interactions as new therapeutic Targets of Heart Failure**
Motohiro Nishida, PhD, Fukuoka, Japan
- 10:45 **Q&A**

10:00 – 11:00 am

Concurrent Session 3B

Cardiac Effects of Oxidation and Inflammation

Moderator: Ameen Ismahil, PhD, Birmingham, Alabama

- 10:00 **T Cell Response to Oxidative Stress in Cardiac Fibrosis**
Pilar Alcaide, MS, Boston, Massachusetts
- 10:15 **Exosomes from ischemic myocardium signal bone marrow cells**
Gangjian Qin, MD, Birmingham, Alabama
- 10:30 **The Role of Cytosolic DNA Sensing in Ischemic Injury and Remodeling**
Dian Cao, MD, Dallas, TX
- 10:45 **Q&A**

11:00 am – Noon

Concurrent Session 4A

Apoptosis, Necrosis and Autophagy in Heart Disease

Moderator: Asa Gustafsson, PhD, La Jolla, California

- 11:00 **CaMKII-dependent ryanodine receptor phosphorylation mediates sepsis-induced cardiomyocyte apoptosis and contractile dysfunction**
Martin Petroff, PhD, La Plata, Argentina
- 11:15 **The role of mitochondrial calcium in activating the permeability transition pore**
Elizabeth Murphy, PhD, Bethesda, Maryland

11:30 **Inhibiting cardiac myeloperoxidase alleviates the relaxation defect in hypertrophic cardiomyocytes**
Chrisnan Ramachandra, PhD, Singapore

11:45 **Q&A**

11:00 am – Noon

Concurrent Session 4B

Novel Pathogenic Pathways in Cardiac Remodeling: Early vs. Late

Moderator: John Calvert, PhD, Suwanee, Georgia

11:00 **Molecular mechanisms of myocardial reverse remodeling after myocarditis**
Yasushi Fujio, MD, Suita, Japan

11:15 **A Tale of Two Stories - Impact of Tobacco Smoke**
Ronglih Liao, PhD, Palo Alto, California

11:30 **Tsg101 Regulates P62-Keap1-Nrf2 Pathway in Ischemic/Reperfused Hearts**
Guo-chang Fan, PhD, Cincinnati, Ohio

11:45 **Q&A**

Noon – 1:00 PM

General Session 5: Keynote Lecture

Moderator: Ivor Benjamin, MD, Milwaukee, Wisconsin

Noon **All is in Flux: Cardiac Metabolism in Transition**
Heinrich Taegtmeyer, MD, Houston, Texas

12:45 **Q&A**

1:00 – 1:30 pm
Break

1:30 – 2:30 PM

Early Career Session

Amplify the Signal, Not the Noise

Moderators:

David Barefield, PhD, Chicago, Illinois

Priscila Sato, PhD, Philadelphia, Pennsylvania

1:30 **Panelists**
Gary Keller, Chicago, Illinois
Michael Kennedy, PhD, Chicago, Illinois

2:15 **Q&A**

1:30 – 2:30 PM

ACS SAHA: Research Advances to Treat Heart Failure

Moderator: Sathyamangla Naga Prasad, PhD, Cleveland, Ohio

- 1:30 **Caveolin in cardiovascular disease**
Hemal Patel, PhD, San Diego, California
- 1:45 **Breaking Down Cell-Cell Connections To Unravel New Mechanisms In Heart Disease**
Farah Sheikh, PhD, La Jolla, California
- 2:00 **Extracellular vesicle-mediated signaling in ischemic heart failure**
Saumya Das, MD, PhD, Boston, Massachusetts
- 2:15 **Q&A**

2:30-3:30 PM

Moderated Poster Session 2A: Myocardial Ischemia, Oxidative Stress, and Cardioprotection

Poster Discussant: Jean Bopassa, PhD, UTHealth, San Antonio, Texas

MP120

Ryanodine Receptor 2 Prevents Endoplasmic Reticulum Stress-induced Defects In Cardiomyocyte Maturation

Yuxuan Guo, Blake Jardin, Boston Children's Hosp, Boston, MA; Silvia Guatimosim, UNIVERSIDADE FEDERAL DE MINAS GERAIS, Belo Horizonte, Brazil; William T Pu, Boston Children's Hosp, Boston, MA

MP121

Deleting The 2-oxoglutarate- And Iron-dependent Prolyl Hydroxylase Ogfod1 Alters Purine Nucleotide Regulation And Is Cardioprotective

LESLIE KENNEDY, NIH: NHLBI, Bethesda, MD; Junhui Sun, NHLBI, NIH, Bethesda, MD; Michael Harris, NHLBI, Bethesda, MD; Matthew Cockman, Francis Crick Inst, London, United Kingdom; Peter Ratcliffe, Francis Crick Inst, Univ of Oxford, London, Oxford, United Kingdom; Elizabeth Murphy, NHLBI, Bethesda, MD

MP122

Effects Of Cardiac Beta3-Adrenoceptors On The Inhibition Of G Protein-coupled Receptor Kinase 2 Via S-nitrosylation

Gizem Kayki Mutlu, Ankara Univ Faculty of Pharmacy, Ankara, Turkey; Kimberly Ferrero, Rajika Roy, Anna Maria Lucchese, Erhe Gao, Walter J Koch, Temple Univ Lewis Katz Sch of Med, Philadelphia, PA

MP123

The Fate And Role Of Pericytes In Repair And Remodeling Of The Infarcted Heart

Linda Alex, Ya Su, Albert Einstein Coll of Med, NYC, NY; Nikolaos G Frangogiannis, ALBERT EINSTEIN COLLEGE OF MEDICINE, Bronx, NY

MP124

De-palmitoylation Of Cysteine 202 Of Cyclophilin-D By Calcium Is Important For The Activation Of The Permeability Transition Pore

Georgios Amanakis, Natl Insts of Health, Bethesda, MD; Junhui Sun, NHLBI, NIH, Bethesda, MD; Maria Fergusson, NIH, Bethesda, MD; Chengyu Liu, Natl Insts of Health, Bethesda, MD; Jeff D Molkenstin, CHILDRENS HOSPITAL MED CTR, Cincinnati, OH; Elizabeth Murphy, NHLBI, Bethesda, MD

MP125

Branched-chain Keto Acids, Not Branched-chain Amino Acids, Impairs Cardiac Insulin Sensitivity By Disrupting Insulin Signaling In The Mitochondria

Qutuba Karwi, Golam Mezbah Uddin, Univ of Alberta, Edmonton, AB, Canada; Cory Shamus Wagg, Univ of Alberta, Edmonton Ab, AB, Canada; Gary D Lopaschuk, UNIVERSITY ALBERTA, Edmonton, AB, Canada

2:30-3:30 PM

Moderated Poster Session 2B: Signal Transduction Pathways

Poster Discussant: Joan Heller Brown, PhD, La Jolla, California

MP131

The CDK2-FOXO1 Axis Mediates Doxorubicin-induced Cardiomyocyte Apoptosis And Atrophy

Peng Xia, Jingrui Chen, Yuening Liu, Washington State Univ, Spokane, WA; Maya Fletcher, Gonzaga Univ, Spokane, WA; Brian C. Jensen, Univ of North Carolina, Chapel Hill, NC; **Zhaokang Cheng**, Washington State Univ, Spokane, WA

MP132

Mutation In *Fbxo32* Causes Dilated Cardiomyopathy By Er-stress Mediated Upregulation Of Chop

Nadya Al-Yacoub, Dilek Colak, Salma M Awad, Mohammed Kunhi, Olfat Al-Harazi, Abdallah Assiri, Jihad Al-Buraiki, King Faisal Specialist Hosp & Res Ctr, Riyadh, Saudi Arabia; Waleed Al-Habib, King Saud Univ, Riyadh, Saudi Arabia; **Coralie I Poizat**, Masonic Medical Res Inst, Utica, NY

MP133

Development Of β -arrestin-biased Positive Allosteric Modulators For The β_1 Adrenergic Receptor

Jialu Wang, Ilhan Gokhan, Xinyu Xiong, Alem W Kahsai, Haoran Jiang, Conrad T Pfeiffer, William Tian, Biswaranjan Pani, Seungkirl Ahn, Robert J Lefkowitz, Howard A Rockman, Duke Univ Medical Ctr, Durham, NC

MP134

The Atf6-inducible Selenoprotein, Vim, Regulates Proteostasis And Pressure Overload-induced Heart Failure

Erik Blackwood, Donna Thuerauf, Lauren MacDonnell, SAN DIEGO STATE UNIVERSITY, San Diego, CA; Alina Susana Bilal, San Diego State Univ, San Diego, CA; Chris C Glembotski, SAN DIEGO STATE UNIVERSITY, San Diego, CA

MP135

Cardiac Sarcoplasmic Reticulum Calcium Cycling Is Regulated By Kinase Independent Function Of Pi3kgamma

Maradumane L Mohan, Conner P Witherow, Robert S Papay, Sathyamangla V Naga Prasad, CLEVELAND CLINIC FOUNDATION, Cleveland, OH

3:30 – 4:30 PM

Concurrent Session 6A

Harnessing Precision Medicine to Treat Cardiovascular Disease

Moderator: Renzhi Han, PhD, Columbus, Ohio

3:30 **Enhancement of Direct Cardiac Reprogramming of Non-Cardiomyocytes Into Cardiomyocytes-like cells Using Combinatorial Modified mRNAs Approach**
Lior Zangi, PhD, New York, New York

3:45 **Atrial Fibrillation: one or many diseases?**
Barbara Casadei, MD, Oxford, England

4:00 **Master Regulators Of Fibroblast Fate & Fibrosis**
Jennifer Davis, PhD, Seattle, Washington

4:15 **Q&A**

3:30 – 4:30 PM

Concurrent Session 6B

Novel Animal Models and Translational Insights

Moderator: Maria Kontaridis, PhD, Utica, New York

3:30 **Defining immune mechanisms of HFpEF using CITE-Seq**
Meena Madhur, MD, Nashville, Tennessee

3:45 **Disparate roles for phagocytes in HFrEF vs HFpEF**
Edward Thorp, PhD, Chicago, Illinois

4:00 **Translational aspects of cardiovascular risk factors for novel therapies**
Rabea Hinkel, DVM, Munich, Germany

4:15 **Q&A**

4:30 – 6:00 PM

Early Career Virtual Networking Social Event

WEDNESDAY, July 29

10:00 – 11:00 AM (CDT)

Concurrent Session 7A

HfpEF in Metabolic Diseases

Moderator: Jonathan Kirk, Maywood, Illinois

- 10:00 **Role of iron in cardiovascular disease**
Hossein Ardehali, MD, Chicago, Illinois
- 10:15 **Adipocyte Dysfunction and Diabetic Cardiac Injury: Beyond Metabolic Dysregulation**
Yajing Wang, MD, PhD, Philadelphia, Pennsylvania
- 10:30 **Role of sarcolipin in dystrophic cardiomyopathy**
Gopal Babu, PhD, Newark, New Jersey
- 10:45 **Q&A**

10:00 – 11:00 AM

Concurrent Session 7B

Cardiotoxicity of Cancer Therapeutics: Mechanisms and Potential Therapies

Moderator: Richard Becker, MD, Cincinnati, Ohio

- 10:00 **Mechanistic Biologic and Imaging Markers of Cancer Therapy
Cardiotoxicity**
Bonnie Ky, MD, Philadelphia, Pennsylvania
- 10:15 **Can cardiomyocyte proliferation impact anthracycline cardiotoxicity?**
Loren Field, PhD, Indianapolis, Indiana
- 10:30 **Clinical Spectrum of Cardio-Oncology – Mechanism Matters**
Carrie Lenneman, MD, Birmingham, Alabama
- 10:45 **Q&A**

11:00 AM – Noon

General Session 8

Molecular Mechanisms of Cardiac Hypertrophy (BCVS-HFA Joint Session)

Moderator: Rebekah Gundry, PhD, Omaha, Nebraska

- 11:00 **Leveraging pathogenic HCM mutations to uncover ‘normal’ physiology**
John Ralphe, MD, Madison, Wisconsin
- 11:15 **Developmental mechanisms of cardiac hypertrophic growth**
Katherine Yutzey, PhD, Cincinnati, Ohio

11:30 **Atrial cardiomyopathies**
Niels Voigt, MD, Gottingen, Germany

11:45 **Q&A**

11:00 AM – Noon

Workshop 1

Nailing Your Statistics: Rigorous Analysis for Grants & Papers

(hosted by Circulation Research)

Moderator: Jane Freedman, MD, Worcester, Massachusetts

11:00 **Panelists**
Jennifer Below, PhD, Nashville, Tennessee
Heather Highland, PhD, M.S., Chapel Hill, North Carolina
Eric Gamazon, PhD, Nashville, Tennessee

11:45 **Q&A**

Noon – 12:30 PM

Break

12:30 – 1:30 PM

General Session 9A

Outstanding Early Career Investigator Award Competition

Moderator: Hesham Sadek, MD, PhD, Dallas, Texas

12:30 **Novel Inhibitors For Temporal Modulation Of T-lymphocytes During Chronic Heart Failure**
Shyam S Bansal, The Ohio State Univ, Columbus, OH; Rachel Rosenzweig, Ohio State Univ, Columbus, OH; SARITA NEHRA, Ohio State Univ, Columbus, OH, COLUMBUS, OH; Oscar Bermeo Blanco, The Ohio State Univ, Columbus, OH; Matthew Stratton, Ohio State Univ, Columbus, OH; Richard J Gumina, Chad Bennett, Christopher Coss, The Ohio State Univ, Columbus, OH

12:45 **Sympathetic Innervation Negatively Regulates Postnatal Cardiomyocyte Proliferation Through Circadian Genes**
Emmanouil Tampakakis, Sean Murphy, Harshi Gangrade, JOHN HOPKINS UNIVERSITY HOSP, Baltimore, MD; William Kowalski, Yosuke Mukoyama, NIH, Bethesda, MD; Chulan Kwon, John Hopkins Univ, Baltimore, MD

1:00 **TBX20 Activates Cardiac Maturation Gene Programs Promoting Direct Human Cardiac Reprogramming**
Yang Zhou, Yawen Tang, Univ of Alabama at Birmingham, Birmingham, AL; Vladimir G. Fast, UNIVERSITY ALABAMA BIRMINGHAM, Birmingham, AL; Lianzhong Zhao, Rui Lu, Univ of Alabama at Birmingham, Birmingham, AL; Jianyi Zhang, UNIVERSITY OF ALABAMA AT BIRMINGHAM, Birmingham, AL

1:15 **Q&A**

12:30 – 1:30 PM

General Session 9B

Metabolism and Redox Mechanisms in Heart Failure

Moderator: Mahesh Gupta, PHD, Chicago, Illinois

12:30 **Chronic reductive stress promotes diastolic dysfunction**
Rajasekaran Namakkal-Soorappan, PhD, Birmingham, Alabama

12:45 **Myoglobin regulates cardiomyocyte differentiation**
Sruti Shiva, PhD, Pittsburgh, Pennsylvania

1:00 **The gut microbiota modulates cardiac repair and metabolism after infarction**
Patrick Hsieh, MD, PhD, Taipei City, Taiwan

1:15 **Q&A**

1:30 – 2:30 PM

General Session 10

Women in Science: Go for It

Moderator: Rong Tian, MD, Seattle, Washington

1:30 Lee Ann Piano, Leadership and Empowerment Speaker, Chicago, Illinois

2:15 **Q&A**

1:30 – 2:30 PM

ACS ACRE

Critical Signaling Pathways in Heart Failure

Moderator: Faqian Li, MD, Minneapolis, Minnesota

1:30 **Synchronizing Cardiac Metabolism With Nutrient Intake**
Martin Young, DPhil, Birmingham, Alabama

1:45 **Developmental signaling pathways in cardiac repair and regeneration**
Sean Wu, PhD, Stanford, California

2:00 **Exploring informatics approaches to better understand pathogenic pathways underlying COVID-19**
John Harry Caufield, PhD, Los Angeles, California

2:15 **Q&A**

2:30 – 3:30 PM

Moderated Poster Session 3A: Systems Approach to Cardiovascular Biology

Poster Discussant: Young-sup Yoon, MD, Atlanta, Georgia

MP140

Epigenetic Silencing Of SERCA2a By Long Noncoding RNA *Lnc-SYNPO* Contributes To Impaired Ca²⁺ Homeostasis And Contractility In The Failing Heart

Min-Yi You, Natl Taiwan Univeristy, Taipei, Taiwan; PEI-JIN HO, Natl Taiwan Univ, Taipei, Taiwan; Hui-Chun Ku, Fu Jen Catholic Univ, New Taipei city, Taiwan; Shu-Ping Wang, Academia Sinica, Taipei, Taiwan; Kai-chien YANG, Natl Taiwan Univ, Taipei, Taiwan

MP141

Role Of Cryptochrome In Angiogenesis

Kazuhito Tsuzuki, Nagoya Univ Graduate Sch of Med, Nagoya Aichi, Japan; Yuuki Shimizu, Nagoya Univ, Nagoya, Japan; Zhongyue Pu, Nagoya university, Nagoya, Japan; Jyunya Suzuki, Nagoya Univ Graduate Sch of Med, Nagoya Aichi, Japan; Toyoaki Murohara, Cardiology, NAGOYA UNIVERSITY, Nagoya, Japan

MP142

Genome-wide Studies Reveal The Essential And Opposite Roles Of Arid1a In Controlling Human Cardiogenesis And Neurogenesis From Pluripotent Stem Cells

Juli Liu, Sheng Liu, Hongyu Gao, Lei Han, Xiaona Chu, INDIANA UNIVERSITY, Indianapolis, IN; Yi Sheng, UNIVERSITY of Pittsburgh, Pittsburgh, PA; Yue Wang, Yunlong Liu, Jun Wan, **Lei YANG**, INDIANA UNIVERSITY, Indianapolis, IN

MP143

Harnessing Glycomics To Understand Cardiac Biology And Disease

Christopher Ashwood, Linda Berg Luecke, **Rebekah L Gundry**, Univ of Nebraska Medical Ctr, Omaha, NE

MP144

Identification Of Epigenetic Regulators Of Cardiac Hypertrophy By An Epigenome-wide Association Study In Mice

Christoph D Rau, Univ of North Carolina at Chapel Hill, Chapel Hill, NC; Milagros Romay, Uni. of California - Los Angeles, Los Angeles, CA; Eleanor Wong, Wilson Tan, Genome Inst of Singapore, Singapore, Singapore; Aldons J Lusic, UNIV OF CALI LOS ANGELES, Los Angeles, CA; Roger Foo, Cardiovascular Res Inst, Singapore; Yibin Wang, UCLA, Encino, CA

MP145

Potential Functions Of The Nuclear Basket Associated With Dilated Cardiomyopathy

Claudia C Preston, Ryan D Burdine, Emily C Storm, Claudia S Preston, Sanford Res, Sioux Falls, SD

2:30 – 3:30 PM

Moderated Poster Session 3B: Inflammation and the Cardiovascular System

Poster Discussant: Beata Wolska, PhD, Chicago, Illinois

MP150

Inositol 1,4,5-trisphosphate Receptors Selectively Regulate Detrimental Cardiac Fibrosis By Modulating ER-phagy

Gaetano Santulli, Einstein Coll of Med, New York, NY; Marco Morelli, Albert Einstein Coll of Med, New York, NY; Xujun Wang, AECOM, NY, NY; John Ferrante, Albert Einstein Coll of Med -

Montefiore Univ Hosp, New York, NY; JESSICA Gambardella, Einstein Coll of Med - ITME, New York, NY

MP151

Cardiomyocyte HIPK2 Is A Critical Regulator Of Purinergic Signaling Regulated Myocardial Inflammation

Tousif Sultan, UAB, Birmingham, AL; Anand Prakash Singh, Univ of Alabama at Birmingham, Birmingham, AL; Prachi Umbarkar, UAB Sch of Med, Birmingham, AL; QinKun Zhang, Hind Lal, UAB, Birmingham, AL

MP152

Smad1 Activation In Infarct Macrophages Restrains Angiogenesis And Accentuates Adverse Remodeling Of The Infarcted Myocardium

Bijun Chen, Ya Su, Nikolaos G Frangogiannis, ALBERT EINSTEIN COLLEGE OF MEDICINE, Bronx, NY

MP153

TET2 Regulates Type I Interferon Signaling In The Hematopoietic Response To Myocardial Infarction

Claire Zhang, David M Calcagno, Avinash Toomu, Kenneth M Huang, Zhenxing Fu, Kevin R King, Univ of California San Diego, La Jolla, CA

MP154

Deletion Of The Duffy Antigen Receptor For Chemokines (DARC) Confers Protection Against Abdominal Aortic Aneurysm (AAA) Formation

Tyler W Benson, Augusta Univ, Augusta, GA; Tetsuo Horimatsu, Medical Coll of Gerogia, Augusta, GA; Mourad Ogbi, Augusta Univ, Augusta, GA; Ha Won W Kim, MEDICAL COLLEGE OF GEORGIA, Augusta, GA; Neal L Weintraub, AUGUSTA UNIVERSITY, Augusta, GA

MP155

Oxidized Lipids Diet Causes Pulmonary Hypertension Through T-cell Dependent Endothelial Cell Apoptosis

Gregoire Ruffenach, Ellen O'connor, UNIVERSITY OF CALIFORNIA, Los Angeles, CA; Mylene Vaillancourt, JASON HONG, Victor R. Grijalva Sr., Christine M Cunningham, UCLA, Los Angeles, CA; shuchita tiwari, UNIVERSITY OF CALIFORNIA, davis, CA; Frederic Perros, INSERM U999, Le Plessis Robinson, France; Xia YANG, UCLA, Los Angeles, CA; Aldrin V Gomes, UNIVERSITY OF CALIFORNIA DAVIS, Davis, CA; Srinivasa T Reddy II, DAVID GEFFEN SCH OF MED AT UCLA, Los Angeles, CA; Mansoureh Eghbali, UCLA, Los Angeles, CA

3:30 – 4:30 PM

Concurrent Session 11A

Molecular & Cellular Therapy for Heart Failure

Moderator: Li Qian, PhD, Chapel Hill, North Carolina

3:30 **Cardioprotection and Myocardial Regeneration in Ischemic Heart Disease**
Wuqiang Zhu, MD, PhD, Phoenix, Arizona

3:45 **Injectable biomaterials for treating myocardial infarction and heart failure**
Karen Christman, PhD, La Jolla, California

4:00 **Molecular control of heart regeneration: insights from platypus, armadillos, bats and whales**
Guo Huang, PhD, San Francisco, California

4:15 **Q&A**

3:30 – 4:30 PM

Concurrent Session 11B

Diastolic & Contractile Dysfunction in Heart Failure

Moderator: John Ralphe, MD, Madison, Wisconsin

3:30 **Stunning and Hibernating Myocardium: Where are we nearly 4 decades later?**
Robert Kloner, MD, PhD, Pasadena, California

3:45 **AAV9 Gene Transfer of MyBPC N-terminal Domains Ameliorates Cardiomyopathy in MyBPC Deficient Mice**
Julian Stelzer, MSc, Cleveland, Ohio

4:00 **Contribution of sarcomere phosphorylation to progressive cardiac dysfunction**
Margaret Westfall, PhD, Ann Arbor, Michigan

4:15 **Q&A**

4:30 – 5:30 PM

General Session 12

Genomic, Genetic and Epigenetic Mechanism of Heart Failure

Moderator: Susan Cheng, MD, Los Angeles, California

4:30 **Drug Delivery for Heart Repair**
Ke Cheng, MD, Raleigh, North Carolina

4:45 **Uncovering rare and common variation underlying heart failure**
Megan Puckelwartz, PhD, Chicago, Illinois

5:00 **Pathogenic role of senocules in age-related disorders**
Ippei Shimizu, MD, Niigata, Japan

5:15 **Q&A**

4:30 – 5:30 PM

Workshop 2

The Practice of Biomedical Research: Honesty Transparency and Early Career Funding Opportunities

Moderator: Leslie Leinwand, PhD, Boulder, Colorado

- 4:30 **The Practice of Biomedical Research: Honesty and Transparency: Basic Science Journal Editor's Viewpoint**
Jane Freedman, MD, Worcester, Massachusetts
- 4:45 **Handling Allegations of Research Misconduct: Federal Government and Institutional Perspective**
Susan Garfinkel, PhD, Columbus, Ohio
- 5:00 **Truth in Publishing**
Joseph Hill, MD, PhD, Dallas, Texas
- 5:15 **Q&A**

THURSDAY, July 30

10:00 – 11:00 AM

Concurrent Session 13A

Extracellular Matrix; Fibroblasts & More

Moderator: Onur Kanisicak, PhD, Cincinnati, Ohio

10:00 **Fibroblast-controlled contractile performance in (tissue engineered) heart muscle**
Wolfram Zimmerman, MD, Göttingen, Germany

10:15 **Fibroblasts in cardiac homeostasis and disease**
Michelle Tallquist, PhD, Honolulu, Hawaii

10:30 **ARNT/ HIF1 beta -Mediated Matrix Metalloproteinase in Heart Failure**
Rongxue Wu, MD, PhD, Chicago, Illinois

10:45 **Q&A**

10:00 – 11:00 AM

Concurrent Session 13B

Regulation of Small RNAs in Heart Failure

Moderator: Jaunian Chen, PhD, Los Angeles, California

10:00 **MyomiR-499 and endothelial dysfunction in diabetes**
Raj Kishore, PhD, Philadelphia, Pennsylvania

10:15 **Activation of endogenous cardiomyocyte proliferation for heart repair**
Yi-gang Wang, MD, PhD, Cincinnati, Ohio

10:30 **Q&A**

11:00 – Noon

Concurrent Session 14A

Cardiac Arrhythmias: from Basic Mechanisms to Precision Medicine

Moderator: Steven Houser, PhD, Philadelphia, Pennsylvania

11:00 **Insights into arrhythmia mechanisms and therapies from cardiac reprogramming**
Stacey Rentschler, MD, St Louis, Missouri

11:15 **Novel pathways for regulation of cardiac fibrosis and inflammation**
Thomas Hund, PhD, Columbus, Ohio

11:30 **Gene editing reverses arrhythmia susceptibility in humanized PLN-R14del mice**
Francesca Stillitano, PhD, New York, New York

11:45 **Q&A**

11:00 – Noon

Concurrent Session 14B

Systems Approaches to Cardiac Disease: Novel Mechanisms

Moderator: Chengxue Qin, PhD, Melbourne, Australia

- 11:00 **Apolipoprotein C3 in complications of diabetes**
Jenny Kanter, PhD, Seattle, Washington
- 11:15 **Beneficial Effect of MCU Overexpression in Heart Failure**
Brian O'Rourke, Baltimore, Maryland
- 11:30 **Developing Novel Microproteins as Heart Failure Therapeutics**
Catherine Makarewich, PhD, Cincinnati, Ohio
- 11:45 Q&A

Noon – 1:00 pm

Moderated Poster Session 4A: Clinical/Translational Research

Poster Discussant: Glenn Rowe, PhD, Birmingham, Alabama

MP160

A Transgenic Approach Using Dual Orthologous DNA Recombinases To Quantify Subpopulations Of Cycling Cardiomyocytes *In Vivo*

Matthew J. Wolf, Leigh A. Bradley, Alexander Young, Hongbin Li, Helen O. Billcheck, Univ of Virginia, Charlottesville, VA

MP161

A Calcineurin-hoxb13 Axis Regulates Growth Mode Of Mammalian Cardiomyocytes

Ngoc Uyen Nhi Nguyen, Diana C Canseco, Feng Xiao, UT Southwestern Medical Ctr, Dallas, TX; Yuji Nakada, Univ of Alabama at Birmingham, Birmingham, AL; Shujuan Li, Nicholas T Lam, Shalini Muralidhar, Jainy J Savla, UT Southwestern Medical Ctr, Dallas, TX; Joseph A Hill, UNIVERSITY TX SOUTHWESTERN MED, Dallas, TX; Zhaoning Wang, UT Southwestern Medical Ctr, Dallas, TX; Mahmoud Salama Ahmed, UT Southwestern Medical Ctr, Dallas, TX, Dallas, TX; Maimon Hubbi, Ivan Menendez-Montes, Jesung Moon, Shah R Ali, Elisa Villalobos, Waleed M Elhelaly, Suwannee Thet, UT Southwestern Medical Ctr, Dallas, TX; Wilson Lek Wen Tan, Chukwuemeka George Anene-Nzelu, Natl Univ of Singapore, Singapore, Singapore; Roger Foo, Cardiovascular Res Inst, Singapore; Roy Jagoree, Stanford Univ, Stanford, CA; Martha S Cyert, STANFORD UNIVERSITY, Stanford, CA; Beverly A Rothermel, UNIVERSITY OF SOUTHWESTERN MED, Dallas, TX; Hesham A Sadek, UTSOUTHWESTERN MEDICAL CENTER, Dallas, TX

MP166

PRKAR1A Deficiency Abrogates Cardiac Hypertrophy Through Inhibition Of Mitochondrial Fission

Yuening Liu, Peng Xia, Jingrui Chen, Washington State Univ, Spokane, WA; Patricia W. Bandettini, Natl Heart, Lung, and Blood Inst, Natl Insts of Health, Bethesda, MD; Lawrence S Kirschner, The Ohio State Univ, Columbus, OH; Constantine A Stratakis, Section on Endocrinology and Genetics, Eunice Kennedy Shriver Natl Inst of Child Health and Human Development, Natl Insts of Health, Bethesda, MD; Zhaokang Cheng, Washington State Univ, Spokane, WA

MP163

Renal Sympathetic Denervation (RDN) Improves Exercise Performance And Vascular Function In The Setting Of Cardiometabolic HFpEF

Hunter Hidalgo, LSU Health Science Ctr, New Orleans, LA; **Juan Gao**, LSU HEALTH SCIENCE CENTER, New Orleans, LA; **Zhen Li**, LSU Health Sciences Ctr – NO, New Orleans, LA; **Thomas E Sharp III**, LSU Health Science Ctr, New Orleans, LA; **Huijing Xia**, LOUISIANA STATE UNIVERSITY, New Orleans, LA; **Daniel R Kapusta**, LSU HEALTH SCIENCES CENTER, New Orleans, LA; **Traci T Goodchild**, LSUHSC – NEW ORLEANS, New Orleans, LA; **David J Lefer**, LSU HEALTH SCIENCES CENTER NO, New Orleans, LA

MP164

Electrophysiologic Conservation Of Epicardial Conduction Dynamics After Myocardial Infarction In Newborn Piglets

Hanjay Wang, Terrence Pong, Haley Lucian, Joy Aparicio-Valenzuela, Stanford Univ, Stanford, CA; **Yuko Tada**, STANFORD UNIVERSITY SCHOOL OF MEDIC, Stanford, CA; **Sasank Sakhamuri**, Sam W Baker, Nicholas A Tran, Stanford Univ, Stanford, CA; **Michael J Paulsen**, Stanford Univ, Los Altos, CA; **Yuanjia Zhu**, Stanford Univ, Stanford, CA; **Anson M LEE**, STANFORD UNIVERSITY, Stanford, CA; **Y. Joseph Woo**, Stanford Univ, Stanford, CA

MP165

Exosome-mediated Encapsulation Alters AAV Antigenicity And Infectivity: Implications For Gene Delivery In The Heart

Marta Adamiak, Yaxuan Liang, Cherrie Sherman, Shweta Lodha, Erik Kohlbrenner, Dongtak Jeong, Delaine K Ceholski, Cardiovascular Res Ctr, Icahn Sch of Med, Mount Sinai, New York, NY; **Navneet Dogra**, Dept of Genetics and Genomic Sciences, Dept of Pathology, Icahn Sch of Med, Mount Sinai, 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 Joseph Hajjar**, Susmita SAHOO, Cardiovascular Res Ctr, Icahn Sch of Med, Mount Sinai, New York, NY

12:00 pm – 1:00 pm

Moderated Poster Session 4B: Genetics and Genomics of Cardiovascular Disease

Poster Discussant: Sarah Schumacher, PhD, Cleveland, Ohio

MP170

Increased G_{α} Expression Regulated By NRSF Plays A Key Role In The Development Of Heart Failure Through The Impairment Of Ca^{2+} Homeostasis

Hideaki Inazumi, KYOTO UNIVERSITY, Kyoto, Japan; **Yasuaki Nakagawa**, KYOTO GRADUATE SCHOOL MEDICINE, Kyoto, Japan; **Kenji Moriuchi**, KYOTO UNIVERSITY HOSPITAL, Kyoto City, Japan; **Koichiro Kuwahara**, SHINSHU UNIVERSITY, Matsumoto Nagano, Japan

MP171

Transcription Start Site Profiling Defines Promoter And Enhancer Regions For Cardiomyopathy Genes

Anthony M Gacita, Lisa Dellefave-Castillo, Patrick GT Page, David Y Barefield, Andrew Wasserstrom, Megan Puckelwartz, Northwestern Univ Feinberg Sch of Med, Chicago, IL; **Marcelo A Nobrega**, The Univ of Chicago, Chicago, IL; **Elizabeth M McNally**, Northwestern Univ Feinberg Sch of Med, Chicago, IL

MP172

Y-chromosome Gene, Uty, Confers Male Protection Against Pulmonary Hypertension By Mediating Pro-inflammatory Chemokine Effects

Christine Marie Cunningham, Soban Umar, UCLA, Los Angeles, CA; **Min Li**, Mitali Doshi, Los Angeles, CA; **Gregoire Ruffenach**, JASON HONG, UNIVERSITY OF CALIFORNIA, Los Angeles, CA; **Haley Hrnrcir**, Arthur Arnold, Mansoureh Eghbali, UCLA, Los Angeles, CA

MP173

Loss Of DCHS1 Promotes Mitral Valve Prolapse Through Cytoskeleton Destabilization

Reece Moore, Medical Univ of South Carolina, Charleston, SC; Kelsey Moore, Rebecca Stairley, Medical Univ of South Carolin, Charleston, SC; Diana Bridget Fulmer, Medical Univ of SC, Charleston, SC; Lilong Guo, Medical Univ of SC, Charleston, SC, Mt Pleasant, SC; Russell A Norris, MEDICAL UNIV OF SOUTH CAROLINA, Charleston, SC

MP174

Cardiomyocyte-specific Deletion Of Parathyroid Hormone Receptor 1 During Development Leads To Left Ventricular Hypoplasia

Desiree Leach, Ryan Jorgensen, Feinberg Sch of Med, Chicago, IL; Jayne Wolfe, Medical Coll of Wisconsin, Wauwatosa, WI; Lisa D Wilsbacher, NORTHWESTERN UNIVERSITY, Chicago, IL

MP175

Disruption Of The Genome Architecture At The *PRRX1* Locus Is Associated With The Pathogenesis Of *LMNA*-related Dilated Cardiomyopathy

Yuan Zhang, Mohamed Ameen, Isaac Perea Gil, Jennifer Arthur, Alexandra A. Gavidia, Nike Bharucha, Kevin C. Wang, Ioannis Karakikes, Stanford Univ Sch of Med, Stanford, CA

1:00 Conference Adjourns