

Join Keystone Symposia
for the 2016 conference on:

Cardiac Development, Regeneration and Repair

April 3–7, 2016

Snowbird Resort | Snowbird, Utah | USA

Scientific Organizers:
Christine L. Mummery, Joseph C. Wu and Jonathan A. Epstein

*Joint with the conference on **Heart Failure: Genetics, Genomics and Epigenetics***

There is increasing evidence that developmental mechanisms regulating cardiac and vascular cell lineage differentiation and organogenesis contribute to cardiovascular disease in childhood and throughout life and could be leveraged to reduce cardiac damage and mediate repair or regeneration once damage has occurred. This meeting will emphasize shared molecular mechanisms in cardiovascular development, regeneration and disease and consider how patient-relevant pluripotent stem cell models can contribute to understanding human disease states. Specific aims are to: 1) Consider animal models for understanding cardiovascular cell lineage commitment, differentiation and proliferation; 2) Explore how this can be applied to creating new stem cell-based models that result in mature cardiovascular derivatives and assays for disease target discovery; and 3) Explore therapeutic potential for cardiovascular repair and regeneration mechanisms in clinical practice. It will bring together world-class speakers and researchers to facilitate new scientific directions and therapeutic approaches in the management and treatment of cardiovascular disease.

Session Topics:

- Cardiac Lineage Commitment and Specification
- Cardiovascular Tissue Engineering and Organs on Chips (Joint)
- Cardiac Morphogenesis and Regeneration
- Differentiation and Characterization of Cardiomyocytes from Pluripotent Stem Cells
- Vascular Development and Disease
- Human Pluripotent Stem Cells as Models of Cardiovascular Disease
- Novel Therapeutic Approaches to Fix Broken Hearts (Joint)
- Cardiomyocyte Maturation, Proliferation and Cardiac Remodeling

Submitting an abstract is a great way of participating in the conference through poster presentation and possible selection for a short talk.

Scholarship & Discounted Abstract Deadline: Dec 3, 2015
Abstract Deadline: Jan 7, 2016
Discounted Registration Deadline: Feb 4, 2016

For additional details, visit **www.keystonesymposia.org/16Z2**.

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KEYSTONE SYMPOSIA
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Cardiac Development, Regeneration and Repair (Z2)

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Heart Failure: Genetics, Genomics and Epigenetics (Z1)

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SUNDAY, APRIL 3

Arrival and Registration

MONDAY, APRIL 4

Welcome and Keynote Address (Z2)

Peter W. Reddien†, Whitehead Institute, USA
Talk Title to be Announced

Welcome and Keynote Address (Z1)

James A. Spudich, Stanford University, USA
Mutations to Mechanisms to Therapies

Cardiac Lineage Commitment and Specification (Z2)

Vincent M. Christoffels, Academic Medical Center, Netherlands
Tbx Transcription Factors in Lineage Determination

Benoit G. Bruneau, Gladstone Institute of Cardiovascular Disease, USA
Transcriptional Regulation of Cardiac Development and Differentiation

Katherine E. Yutzey, Cincinnati Children's Hospital Medical Center, USA
Epicardial and Myocardial Fate Specification

Short Talk(s) Chosen from Abstracts

Heart Failure 2016: Syndromes, Mechanisms and Treatments (Z1)

Burkert Pieske, Charité, Germany
What We Don't Know?

Denise Hilfiker-Kleiner, Medizinische Hochschule Hannover, Germany
Molecular Mechanisms Underlying Peripartum Cardiomyopathy

John Lepore, GlaxoSmithKline, USA
Novel Therapeutic Targets for Heart Failure: An Industry Perspective

Short Talk(s) Chosen from Abstracts

Workshop and Panel 1: Genetics of Heart Failure (Z1)

Short Talks Chosen from Abstracts

Cardiovascular Tissue Engineering and Organs on Chips (Joint)

Thomas Eschenhagen, University Medical Center Hamburg-Eppendorf, Germany
Dissecting Gene Variant Effect Using Tissue Models

Kevin Kit Parker, Harvard University, USA
Engineered Cardiac Tissues

Speaker to be Announced

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, APRIL 5

Cardiac Morphogenesis and Regeneration (Z2)

Jonathan A. Epstein, Perelman School of Medicine at the University of Pennsylvania, USA
Patterning the Early Heart

Eldad Tzahor, Weizmann Institute of Science, Israel
Novel Signals for Cardiomyocyte Renewal

Kenneth D. Poss, Duke University Medical Center, USA
Zebrafish Heart Regeneration

Neil C. Chi, University of California, San Diego, USA
Cardiomyogenesis and Regeneration in Zebrafish

Short Talk(s) Chosen from Abstracts

Sarcomere Genetics: So What's New? (Z1)

Stuart A. Cook, Duke-NUS Graduate Medical School Singapore, Singapore
Human and Rat Studies of Titin

Christine E. Seidman, Harvard Medical School, USA
Genetic Antidotes for Cardiomyopathy

Richard L. Moss, University of Wisconsin, Madison, USA
Modulation of Sarcomeres via MYBPC3

Leslie A. Leinwand, University of Colorado, Boulder, USA
Myosin Myoapthies: Mechanisms of Pathogenesis and Potential Therapeutics

Hugh Watkins, University of Oxford, UK
Sequencing Sarcomeric (and Other Genes) in Cardiomyopathy

Differentiation and Characterization of Cardiomyocytes from Pluripotent Stem Cells (Z2)

David A. Elliott, Murdoch Childrens Research Institute, Australia
Generating Cellular Diversity during Human Cardiovascular Development

Bernd K. Fleischmann, Bonn University, Germany
Electrophysiology and Optogenetics for Heart Cells

Godfrey Smith, University of Glasgow, UK
Pharmacology of iPSC Derived Cardiomycytes

Short Talk Chosen from Abstracts

Systems Dissection of Cardiac Failure (Z1)

Nicolas Smith, University of Auckland, New Zealand
Multi-Scale Computational Modeling of the Heart: From Protein to Organ, Mouse to Man

Norbert Hubner, Max-Delbrück-Center for Molecular Medicine, Germany
Ribosome Profiling of the Failing Heart

Roger Foo, University of Singapore, Singapore
What Single Cell Genomics Can Tell Us About Heart Failure

Short Talk Chosen from Abstracts

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Poster Session 2

WEDNESDAY, APRIL 6

Human Pluripotent Stem Cells as Models of Cardiovascular Disease (Z2)

Joseph C. Wu, Stanford University School of Medicine, USA
Cardiac iPSCs for Disease Modeling and Drug Discovery

Lior Gepstein, Technion-Israel Institute of Technology, Israel
Cardiac Disease: Arrhythmias and Heart Failure

Christine L. Mummery, Leiden University Medical Center, Netherlands
Phenotyping Cardiovascular Disease in Isogenic iPSC

Kiran Musunuru, Harvard University, USA
Genome Editing of Human Pluripotent Stem Cells to Generate Human Cellular Disease Models

Short Talk(s) Chosen from Abstracts

Aging Hearts (Z1)

Jeffrey Robbins, Cincinnati Children's Hospital Research Foundation, USA
Protein Quality Control in Heart Failure Syndromes

Richard T. Lee, Harvard University, USA
Systemic Factors and Cardiac Aging

Jeffery D. Molkentin, Cincinnati Children's Hospital Medical Center, USA
Cardiac Fibroblasts: Foe or Transformative Friend

Joseph A. Hill, University of Texas Southwestern Medical Center, USA
Autophagy and Heart Disease

Short Talk(s) Chosen from Abstracts

Vascular Development and Disease (Z2)

Anne C. Eichmann, Yale University, USA
Signalling in Vascular Development and Function

Zoltan P. Arany, University of Pennsylvania, USA
Vascular Metabolism and Disease

Stefanie Dimmeler, University of Frankfurt, Germany
Noncoding RNAs in Cardiovascular Repair

Short Talk Chosen from Abstracts

Molecular Aspects of Muscle Cell Contractility and Relaxation (Z1)

Wolfgang A. Linke, Ruhr University Bochum, Germany
Titin Elasticity and Diastolic Function

David Warshaw, University of Vermont, USA
Molecular Mechanics of MYBPC3

Gerald W. Dorn, II, Washington University School of Medicine, USA
Dysfunctional Energetics and Mitochondrial Senescence

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, APRIL 7

Novel Therapeutic Approaches to Fix Broken Hearts (Joint)

Paul R. Riley, University of Oxford, UK
Reactivation of a Developmental Programme towards Heart Repair

Eric N. Olson, University of Texas Southwestern Medical Center, USA
Genome Engineering to Fix Hearts

Charles E. Murry, University of Washington, USA
Repairing the Hearts of Non-Human Primates with Human Cardiomyocytes

Karl Tryggvason, Karolinska Institutet, Sweden
Using Laminins to Generate Therapeutic Cardiac Myocytes from hES Cells

Short Talk(s) Chosen from Abstracts

Workshop and Panel 2: Epigenetics and Genomics of Heart Failure (Z1)

Short Talks Chosen from Abstracts

Cardiomyocyte Maturation, Proliferation and Cardiac Remodelling (Z2)

Anthony J. Muslin, Sanofi, USA
Signal Transduction Pathways Related to Cardiac Hypertrophy

Speaker to be Announced

Thomas Braun, Max Planck Institute for Heart and Lung Research, Germany
Molecular Control of Cardiac Regeneration and Remodeling

Epigenetics and miRNAs: Muscle Failure and Arrhythmia Predisposition (Z1)

Stefan Engelhardt, Technische Universität München, Germany
MicroRNAs from Non-Muscle Cells

Andrew R. Marks, Columbia University College of Physicians and Surgeons, USA
Calcium and Mitochondria: New Understandings of Heart Failure

Yigal M. Pinto, Academic Medical Center, University of Amsterdam, Netherlands
Role of Cardiac Specific RNA Binding Proteins in Regulating miRNA Function

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z2)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z1)

FRIDAY, APRIL 8

Departure