
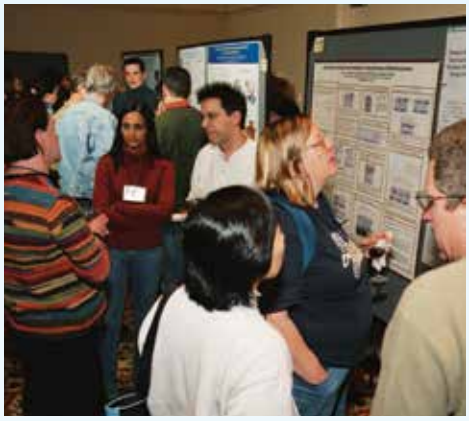


Join Keystone Symposia
for the 2016 conference on:

Heart Failure: Genetics, Genomics and Epigenetics

April 3–7, 2016

Snowbird Resort | Snowbird, Utah | USA

Scientific Organizers:
Stuart A. Cook, Christine E. Seidman and Yigal M. Pinto

*Joint with the conference on **Cardiac Development, Regeneration and Repair***

Despite an investment of tens of billions of dollars each year, heart failure (HF) therapies have limited efficacy in reducing disease progression. Recent insights in fundamental myocyte biology, HF etiologies and pathogenic mechanisms are propelling new strategies to treat and prevent HF. This meeting will explore biologic and technical advances that inform the genetic architecture, molecular pathogenesis and innovative approaches to treat HF. This comes at a time when very large human HF datasets are available and can be interrogated using advanced computational and bioinformatic approaches. Specific aims are to: 1) Consider genes, molecules, signaling pathways and biomarkers involved in systolic and diastolic HF in humans; 2) Explore disease mechanisms underlying HF in model systems; 3) Understand the role of epigenetics, miRNAs and lncRNAs in HF pathogenesis; and 4) Review translational programs in genomic, pharmacologic and cell-based therapeutics to treat HF. The outcomes of this meeting should be far-reaching for basic, translational and clinical communities.

Session Topics:

- Heart Failure 2016: Syndromes, Mechanisms and Treatments
- Cardiovascular Tissue Engineering and Organs on Chips (Joint)
- Sarcomere Genetics: So What's New?
- Systems Dissection of Cardiac Failure
- Aging Hearts
- Molecular Aspects of Muscle Cell Contractility and Relaxation
- Novel Therapeutic Approaches to Fix Broken Hearts (Joint)
- Single Cell and Liquid Biopsy Genomics of Cancer
- Workshop and Panel 1: Genetics of Heart Failure
- Workshop and Panel 2: Epigenetics and Genomics of Heart Failure

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/16Z1**.

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KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Heart Failure: Genetics, Genomics and Epigenetics (Z1)

Scientific Organizers: Stuart A. Cook, Christine E. Seidman and Yigal M. Pinto

Sponsored by Bayer HealthCare Pharmaceuticals, Pfizer Inc. and Takeda Pharmaceutical Company Limited

Cardiac Development, Regeneration and Repair (Z2)

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

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SUNDAY, APRIL 3

Arrival and Registration

MONDAY, APRIL 4

Welcome and Keynote Address (Z1)

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

Welcome and Keynote Address (Z2)

Peter W. Reddien, Whitehead Institute, USA
The Role of Muscle Cells in Directing Regeneration in Planarians

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

*__Christine E. Seidman__, Harvard Medical School, USA

*__Hugh Watkins__, University of Oxford, UK

Frank R. Heinzel, , Germany
What We Don't Know?

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

Robert N. Willette, GlaxoSmithKline, USA
Challenges and Opportunities in Heart Failure Drug Discovery: An Industry Perspective

Leanne Elizabeth Felkin, Imperial College London, UK
Short Talk: Recovery of Cardiac Function in Cardiomyopathy due to Titin Truncation

Pu Qin, GlaxoSmithKline, USA
Short Talk: Activation of the Amino Acid Response Pathway Blunts the Effects of Cardiac Stress and Improves Survival

Cardiac Lineage Commitment and Specification (Z2)

*__Christine L. Mummery__, Leiden University Medical Center, Netherlands

Vincent M. Christoffels, Academic Medical Center, Netherlands
T-Box Transcription Factors in Conduction System Lineage Determination

Benoit G. Bruneau, Gladstone Institute of Cardiovascular Disease, USA
Transcriptional Regulation of Heart Development and Chromatin Structure

Katherine E. Yutzey, Cincinnati Children's Hospital Medical Center, USA
Epicardial-Derived Lineages in Heart Development and Disease

Alexandre R. Colas, Sanford-Burnham Medical Research Institute, USA
Short Talk: Id1 Is an Evolutionarily Conserved Master Regulator of Cardiogenic Mesoderm Formation

Daniel M. DeLaughter, Harvard Medical School, USA
Short Talk: Single Cell Transcriptional Atlas of Cardiac Development

Workshop and Panel 1: Molecular Etiology of Heart Failure (Z1)

*__Norbert Hubner__, , Germany

*__Denise Hilfiker-Kleiner__, Medizinische Hochschule Hannover, Germany

Daniel I. Swerdlow, University College London, UK
Heart FailuRe Molecular Epidemiology for Therapeutic TargetS (HERMES) Consortium: Design of a Collaborative Genetic Meta-Analysis Investigating Causal Pathways in Heart Failure

J. Gustav Smith, Lund University, Sweden
Discovery and Initial Characterization of Genetic Variation on Chromosome 5q22 Associated with Mortality in Heart Failure

Lek Wen Tan, Genome Institute of Singapore, Singapore
Circular RNA Landscape in Human and Mouse Heart

Anthony Cammarato, Johns Hopkins University, USA
Influence of Actin Pseudo-Acetylation on in vivo and in vitro Cardiac Performance

Yasmine Aguib, Aswan Heart Centre, MYF, Egypt
Defining the Genetic Architecture of Cardiomyopathy within the Egyptian Population

Saptarsi M. Haldar, Gladstone Institutes and University of California, San Francisco, USA
Therapeutic Targeting of Chromatin-Dependent Signaling in Heart Failure

Selvi Celik, Lund University, Sweden
Atrial Natriuretic Peptide Expression is Negatively Regulated by a Long Noncoding Antisense RNA Transcript (NPPA-AS1) in Human Cardiomyocytes

Rudolf J. Wiesner, University of Cologne, Germany
Mosaic Mitochondrial Respiratory Chain Deficiency Causes Cardiac Arrhythmia during Aging

Cardiovascular Tissue and Organs on Chips (Joint)

*__Karl Tryggvason__, Karolinska Institutet, Sweden

Thomas Eschenhagen, University Medical Center Hamburg-Eppendorf, Germany
Dissecting Gene Variant Effects with Tissue Models

Christopher S. Chen, Boston University, USA
Mechanoregulation of Form and Function: A Story of Cell Adhesion and the Cytoskeleton

Eric N. Olson, University of Texas Southwestern Medical Center, USA
Myoediting: Correction of DMD by CRISPR/Cas9 Gene Editing

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Kevin Beussman, University of Washington, USA
Short Talk: Intracellular Assessment of the Maturation of Excitation-Contraction Coupling in Human Stem Cell-Derived Cardiomyocytes

Poster Session 1

TUESDAY, APRIL 5

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

*__Norbert Hubner__, , Germany

*__Carolyn Ho__, Brigham and Women's Hospital, USA

Stuart A. Cook, Duke-NUS Graduate Medical School Singapore, Singapore
Disease Mechanisms in Titin Cardiomyopathy

Christine E. Seidman, Harvard Medical School, USA
Genetic (and Other) 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 Myopathies: Pathogenesis and Potential Therapeutics

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

Cardiac Morphogenesis and Regeneration (Z2)

*__Benoit G. Bruneau__, Gladstone Institute of Cardiovascular Disease, USA

Jonathan A. Epstein, University of Pennsylvania, USA
Nuclear Architecture and Cardiac Development

Eldad Tzahor, Weizmann Institute of Science, Israel
Novel Insights into Cardiac Regeneration

Kristy Red-Horse, Stanford University, USA
Growth and Patterning of Coronary Arteries

Neil C. Chi, University of California, San Diego, USA
Cellular and Genetic Dissection of Cardiovascular Development and Regeneration

Ignacio Flores, Centro Nacional de Investigaciones Cardiovasculares, Spain
Short Talk: Telomerase is Essential for Zebrafish Heart Regeneration

Tilde Eskildsen, Odense University Hospital, Denmark
Short Talk: Defining the Earliest Step of Cardiovascular Development Using CRISPR Genome Editing Technology

Systems Dissection of Cardiac Failure (Z1)

*__Yigal M. Pinto__, University of Amsterdam, Netherlands

Norbert Hubner, , Germany
Dissecting the Genetic Basis of Translational Regulation in Heart Failure

Andrew R. Marks, Columbia University College of Physicians and Surgeons, USA
Towards a Structural Basis of Complex Disorders of the Heart: Calcium Leak and Mitochondria

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

*__Martina Brueckner__, Yale University School of Medicine, USA

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

Bernd K. Fleischmann, Bonn University, Germany
Assessing Plasticity of Cardiomyocytes Using Pluripotent ES-Cell and Mouse Models

Godfrey Smith, University of Glasgow, UK
The Pharmacology of iPS-Derived Cardiomyocytes

Sanjay Sinha, University of Cambridge, UK
Short Talk: Human Pluripotent Stem Cell-Derived Epicardium Promotes Cardiomyocyte Maturation and Contraction in Tissue-Engineered Cardiac Constructs

Poster Session 2

WEDNESDAY, APRIL 6

Aging Hearts (Z1)

*__Leslie A. Leinwand__, University of Colorado Boulder, USA

*__Gerald W. Dorn, II__, Washington University School of Medicine, USA

Jeffrey Robbins, Cincinnati Children's Hospital Medical Center, USA
Interplay of Proteotoxicity, Heart Failure and Autophagy

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

Jeffery D. Molkentin, Cincinnati Children's Hospital Medical Center, USA
Genetic Lineage Tracing Defines Myofibroblast Origin and Function in the Injured Heart

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

Rolf Bodmer, Sanford-Burnham Medical Research Institute, USA
Short Talk: Preserving Heart Function despite Obesity, Aging and Parental Diet

Eleonora Adami, Max Delbrück Center for Molecular Medicine, MDC, Germany
Short Talk: Ribo-Seq Provides a Genome-Wide View of Translational Control in the Diseased Human and Rat Heart

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

*__Stacey L. Rentschler__, Washington University School of Medicine, USA

__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
iPS Modeling of Cardiac Disease: Arrhythmias and Heart Failure

__Christine L. Mummery__, Leiden University Medical Center, Netherlands
Human iPS Cell Models of Heart and Blood Vessel Disease

__Kiran Musunuru__, University of Pennsylvania, USA
Genome Editing of Human Pluripotent Stem Cells to Generate Human Cellular Disease Models

__Zhen Ma__, University of California, Berkeley, USA
Short Talk: Biomaterial-Guided Isogenic iPS Disease Modeling of Hypertrophic Cardiomyopathy

__Yuta Yamamoto__, Kyoto University, Japan
Short Talk: Modeling of Long-QT Syndrome Associated with a Calmodulin Mutation using Human Induced Pluripotent Stem Cells

Molecular Aspects of Muscle Cell Contractility and Relaxation (Z1)

*__Jeffrey Robbins__, Cincinnati Children's Hospital Medical Center, USA

*__Stefan Engelhardt__, Institut for Pharmacologie & Toxicologie der TUM, Germany

__Wolfgang A. Linke__, University of Munster, Germany
Titin Elasticity Impacts Diastolic and Systolic Function

__David Warshaw__, University of Vermont, USA
Molecular Mechanics of MYBPC3

__Gerald W. Dorn, II__, Washington University School of Medicine, USA
Mitochondrial Triage: Dynamism Determines Quality Control

__Nina de Groot__, University of Amsterdam, Netherlands
Short Talk: Rbm24 Influences the force-Ca2+ Relation in Heart Muscle

__Ryan L. Boudreau__, University of Iowa, USA
Short Talk: The Cardiac microRNA-target Interactome Reveals a Novel miR-24:SCN5A:SNP Interaction Associating with Non-Arrhythmic Death in Heart Failure

Vascular Development and Disease (Z2)

__Anne C. Eichmann__, Yale University School of Medicine, USA
Signalling in Vascular Development and Function

__Zoltan P. Arany__, University of Pennsylvania, USA
Vascular Metabolism and Disease

__Stefanie Dimmeler__, University of Frankfurt, Germany
Non-Coding RNAs in Cardiovascular Repair

__Alexandria Afonso__, McMaster University, Canada
Short Talk: Modeling Genetic Determinants of Early-Onset Coronary Artery Disease using Patient-Derived Induced Pluripotent Stem Cells

__Naoko Koyano-Nakagawa__, University of Minnesota, USA
Short Talk: Feedback Mechanisms Regulate Ets variant 2 (Etv2) Gene Expression and Hematoendothelial Lineages

Poster Session 3

THURSDAY, APRIL 7

Novel Therapeutic Approaches to Fix Broken Hearts (Joint)

*__Joseph C. Wu__, Stanford University School of Medicine, USA

__Paul R. Riley__, University of Oxford, UK
Developmental Programming of the Cardiac Lymphatics towards Heart Repair

__Kenneth D. Poss__, Duke University Medical Center, USA
Endogenous Heart Regeneration Programs

__Charles E. Murry__, University of Washington, USA
Cardiogenesis with Human Pluripotent Stem Cells

__Karl Tryggvason__, Karolinska Institutet, Sweden
Using Laminins to Generate Therapeutic Cardiomyocytes from hES Cells

__Anna Blice-Baum__, Johns Hopkins University, USA
Short Talk: Titered FOXO Overexpression Maintains Cardiac Proteostasis and Ameliorates Age-Associated Functional Decline

__Palmer Yu__, Gladstone Institutes, USA
Short Talk: Regeneration of Cardiomyocytes in vivo Using Human Cardiac Reprogramming Factors in a Pig Model

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

*__Esther E. Creemers__, Academic Medical Center, Netherlands

*__Joseph A. Hill__, University of Texas Southwestern Medical Center, USA

__Stefan Engelhardt__, Institut for Pharmacologie & Toxicologie der TUM, Germany
MiRNAs from Non-Muscle Cells

__Roger Foo__, Genome Institute of Singapore, Singapore
What Single Cell Genomics Can Tell Us About Heart Failure

__Yigal M. Pinto__, University of Amsterdam, Netherlands
Role of Cardiac Specific RNA Binding Proteins in Regulating miRNA Function

Cardiomyocyte Maturation, Proliferation and Cardiac Remodeling (Z2)

*__Bernd K. Fleischmann__, Bonn University, Germany

Anthony J. Muslin, Sanofi Global Research & Development, USA
Signal Transduction Pathways Related to Cardiac Hypertrophy

Jose Luis de la Pompa, Centro Nacional de Investigaciones Cardiovasculares, Spain
Notch Signaling in Ventricular Chamber Development and Disease

Thomas Braun, , Germany
The Role of Dedifferentiated Cardiomyocytes in the Diseased Myocardium

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

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

FRIDAY, APRIL 8

Departure