

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Heart Disease and Regeneration: Insights from Development (X1)

Scientific Organizers: Vincent M. Christoffels, James F. Martin and Deborah L. Yelon

Supported by the Directors' Fund

Cell Biology of the Heart: Beyond the Myocyte-Centric View (X2)

Scientific Organizers: Peter Kohl, Robert G. Gourdie and Stefanie Dimmeler

March 1-6, 2015 • Copper Mountain Resort • Copper Mountain, Colorado, USA

Supported by the Directors' Fund

Abstract & Scholarship Deadline: November 4, 2014 / Abstract Deadline: December 3, 2014 / Discounted Registration Deadline: January 6, 2015

SUNDAY, MARCH 1

Registration

MONDAY, MARCH 2

Keynote Address (Joint)

Didier Y. R. Stainier, Max Planck Institute for Heart and Lung Research, Germany
Regulation of Cardiovascular Development

Potential and Pitfalls of Cell Reprogramming (Joint)

Eric N. Olson, University of Texas Southwestern Medical Center, USA
Potential of Non-Myocyte Reprogramming: Utility of Small Molecules and miRNAs

Sean M. Wu, Stanford School of Medicine, USA
Challenges of Non-Myocyte Reprogramming: Understanding and Controlling Epigenetics

Deepak Srivastava, Gladstone Institute of Cardiovascular Disease, USA
Reprogramming Approaches to Cardiovascular Disease
Short Talk(s) Chosen from Abstracts

Workshop 1: Emerging Technologies: Genomics and Genome Editing (X1)

Short Talks Chosen from Abstracts

Workshop 1: Optogenetics for Cell-Type Specific Observation and Intervention (X2)

Short Talks Chosen from Abstracts

Epigenetics of Cardiac Development (X1)

Benoit G. Bruneau, Gladstone Institute of Cardiovascular Disease, USA

Epigenomic Regulation of Heart Development

Speaker to be Announced

Laurie A. Boyer, Massachusetts Institute of Technology, USA
The Braveheart Long Noncoding RNA in Early Heart Development
Short Talk Chosen from Abstracts

Non-Myocytes in Cardiac Development (X2)

Edward E. Morrisey, University of Pennsylvania, USA
Mechanisms Promoting Myocardial Repair and Replenishment

Chip Norris, Medical University of South Carolina, USA
Daschous-Hippo: Novel Regulators of Myocyte – Non-Myocyte Interaction and Cardiac Growth

Michelle D. Tallquist, University of Hawaii, USA
Mesenchyme – Vasculature Interactions
Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, MARCH 3

Regulatory Networks for Cardiac Rhythm (X1)

Patrick T. Ellinor, Massachusetts General Hospital, USA
Genetics of Atrial Fibrillation

Vincent M. Christoffels, Academic Medical Center, Netherlands
Transcriptional Networks for Conduction System Development

Stacey L. Rentschler, Washington University School of Medicine, USA

Notch Signalling and Conduction System Development

Sylvia M. Evans, University of California, San Diego, USA

Role of Islet1 in Sinus Node Development

Short Talk(s) Chosen from Abstracts

Cardiac Non-Myocytes as Signaling Hubs: Biochemical Signals (X2)

Mark L. Entman, Baylor College of Medicine, USA
Fibroblasts of Myeloid Origin and Immune-Inflammatory Dysregulation

Kenneth Walsh, Boston University School of Medicine, USA
Non-Myocyte Contributions to Cardiokines: Deciphering the Cardiac Secretome

Thomas Thum, Medical School Hannover, Germany
New Players in Cardiac Cell-Cell Communication: miRNAs and Exosomes

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Gene Regulatory Networks (X1)

Ivan P.G. Moskowitz, University of Chicago, USA
Gene Regulatory Networks Governing Atrial Septation

Sophia Y. Tsai, Baylor College of Medicine, USA
Regulatory Network for Atrial Identity

Brian L. Black, University of California, San Francisco, USA
Transcriptional Pathways Controlling OFT Development
Short Talk Chosen from Abstracts

Cardiac Non-Myocytes as Signaling Hubs: Biophysical Signals (X2)

Speaker to be Announced

Robert G. Gourdie, Virginia Tech Carilion Research Institute, USA
Connexins as Regulators of Fibrosis

Douglas W. Losordo, NeoStem, USA
The Microvasculature as a Therapeutic Target in Ischemic Tissue Repair

Short Talk Chosen from Abstracts

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Poster Session 2

WEDNESDAY, MARCH 4

Renewal and Plasticity (X1)

Hesham A. Sadek, University of Texas Southwestern Medical Center, USA

Meis 1 in Heart Regeneration

James F. Martin, Baylor College of Medicine, USA

Hippo Signaling in Heart Regeneration

Gordana V. Vunjak-Novakovic, Columbia University, USA

Bioengineering Heart Tissue

Charles E. Murry, University of Washington, USA

Chromatin Signatures Identify Regulators of Cardiac Development

Short Talk(s) Chosen from Abstracts

Cardiac Non-Myocytes in Tissue Structure and Function in the Adult Heart (X2)

Nadia A. Rosenthal, Monash University, Australia

Macrophages and Cardiac (re-)Vascularization

Shahin Rafii, Weill Cornell Medical College, USA

Angiocrine Contribution of the Vascular Niche to Regeneration and Fibrosis

Yuyi Zhang†, Peking University, China

Nanotube Coupling of Myocytes and Fibroblasts

Mario Delmar, New York University, USA

Heterocellular Mechanical Junctions and Arrhythmogenesis

Short Talk(s) Chosen from Abstracts

Workshop 2: Emerging Technologies: Imaging (X1)

Short Talks Chosen from Abstracts

Workshop 2: 3D Tissue-Accurate Reconstruction of Structure and Function (X2)

Short Talks Chosen from Abstracts

Signaling Pathways: Integration and Crosstalk (X1)

Steven J. Kattman, Cellular Dynamics International, USA

Cardiac Differentiation of iPSCs for Cardiac Cell Therapeutic Applications

Katherine E. Yutzey, Cincinnati Children's Hospital Medical Center, USA

Regulation of Postnatal Cardiomyocyte Proliferation

Jonathan A. Epstein, University of Pennsylvania, USA

Notch and Cardiomyocyte Diversification

Short Talk Chosen from Abstracts

Cardiac Non-Myocytes as Targets of Interventions (X2)

Natalia Trayanova, Johns Hopkins University, USA

Patient-Based Computer Modelling Cardiac Scar Effects and their Interventional Correction

Bernd K. Fleischmann, Universität Bonn, Germany

Heterocellular Electrical Coupling and Anti-Arrhythmogenesis

Speaker to be Announced

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, MARCH 5

Morphogenesis and Biomechanics (X1)

Hiroshi Hamada, Osaka University, Japan

Generating and Sensing Fluid Flow by Cilia during Left-Right Patterning

Deborah L. Yelon, University of California, San Diego, USA

Extracellular Interactions that Sculpt Cardiac Morphology

Jeroen Bakkers, Hubrecht Institute, Netherlands

Mechanisms Driving Cardiac Left-Right Asymmetry

Clare M. Waterman-Storer, National Heart, Lung and Blood Institute National Institutes of Health, USA

Regulation of Morphogenesis by Mechanosensation of ECM Rigidity

Short Talk(s) Chosen from Abstracts

Responses to Cardiac Injury: Who Does What? (X2)

Merry L. Lindsey, University of Mississippi Medical Center, USA

Proteomics of Post-Infarct ECM Remodelling

Joshua M. Hare, University of Miami Miller School of Medicine, USA

Bone-Marrow Derived versus Resident Cell Recruitment for Cardiac Repair

Jeffrey W. Holmes, University of Virginia, USA

Scar Structure and Mechanics: Chicken-and-Egg?

Peter Kohl, Imperial College London, UK

Steering Scar Properties After Ablation and Infarction

Short Talk(s) Chosen from Abstracts

Heart Repair: Make New Muscle or Better Scars? (Joint)

Kenneth D. Poss, Duke University Medical Center, USA

Natural Cardiac Repair Strategies

Paul R. Riley, University of Oxford, UK

Epicardium-Derived Heart Muscle Repair

Roger R. Markwald, Medical University of South Carolina, USA

The Living Scar

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Keynote Address (Joint)

Stefanie Dimmeler, University of Frankfurt, Germany

Noncoding RNAs and Cardiac Repair

FRIDAY, MARCH 6

Departure