

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

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

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

Supported by the Directors' Fund

Heart Disease and Regeneration: Insights from Development (X1)

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

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

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Abstract & Scholarship Deadline: November 4, 2013 / Abstract Deadline: December 3, 2013 / 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: Optogenetics for Cell-Type Specific Observation and Intervention (X2)

Short Talks Chosen from Abstracts

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

Short Talks 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

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

Poster Session 1

TUESDAY, MARCH 3

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

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: 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

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

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Poster Session 2

WEDNESDAY, MARCH 4

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

Youyi 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

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

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

Short Talks Chosen from Abstracts

Workshop 2: Emerging Technologies: Imaging (X1)

Short Talks 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

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

Poster Session 3

THURSDAY, MARCH 5

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

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

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

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Roger R. Markwald, Medical University of South Carolina, USA
The Living Scar

Keynote Address (Joint)

Stefanie Dimmeler, University of Frankfurt, Germany
Noncoding RNAs and Cardiac Repair

FRIDAY, MARCH 6

Departure