

Program
ISACB 12th Biennial Meeting

***Regeneration, Remodeling, and Repair:
Mechanisms, Models, and Therapies for Heart and Vascular Disease***

September 22-September 25, 2010

Wednesday, September 22, 2010

12:00 p.m.-5:00 p.m.

*3 Black Fan Circle, Floor 17
Center for Life Sciences
Longwood Medical Area*

**Satellite Meeting: Molecular Imaging of
Cardiovascular Disease**

Opening remarks –

Masanori Aikawa, Department of Medicine (Cardiovascular Division), Brigham and Women's Hospital; Assistant Professor of Medicine, Harvard Medical School

Symposium Keynote Lecture

Imaging and targeted drug delivery in atherosclerosis

Zahi Fayad, Assistant Professor of Medicine, Mount Sinai School of Medicine

Intravascular optical molecular imaging: Steps towards high-risk plaque detection in the human coronary artery

Farouc Jaffer, Department of Medicine (Cardiology Division) Massachusetts General Hospital; Assistant Professor, Harvard Medical School

Fluorescence tomographic imaging of protease activity in mouse models of atherosclerosis

Jeffrey Peterson, Vice President of Applied Biology, VisEn Medical

Coffee break

The regression of atherosclerosis in mouse models and its imaging by MRI

Edward Fisher, Departments of Medicine (Cardiology) and Pediatric Cardiology and Cell Biology (Administration), New York University

Assessing function in models of cardiac pathology using high frequency ultrasound

Tonya Coulthard, Applications Specialist, Visualsonics

Cardiovascular inflammation and calcification: Insights from molecular imaging

Elena Aikawa, Department of Medicine (Cardiovascular Division), Brigham and Women's Hospital; Assistant Professor of Medicine, Harvard Medical School

Closing remarks –

Peter Libby, Chief, Cardiovascular Division, Department of Medicine, Brigham and Women's Hospital; Professor of Medicine, Harvard Medical School

Keynote Presentation and Opening Reception: Cambridge Marriott

6:00 p.m. - 7:00 p.m.

Salon 3

ISACB Meeting Keynote Lecture (*Introduction by Frederick Schoen*)

Vascular Endothelium in the Post Genomic Era: New Insights and Opportunities

Michael Gimbrone, Chairman, Department of Pathology Brigham and Women's Hospital; Professor of Pathology, Harvard Medical School

7:00 p.m. - 9:00 p.m.

Roof Garden

(Salon 5-7, if inclement weather)

Welcome Reception

Welcome Remarks provided by Elliot Chaikof

Thursday, September 23, 2010

7:00 a.m. 8:00 a.m.

Salon Foyer

Continental Breakfast

7:30 a.m. -5:00 p.m.

Registration Foyer

Registration Open

8:00 a.m.-12:00 p.m.

Salon 4

Poster Set-Up

12:00 p.m. - 5:00 p.m.

Salon 4

Posters on Display

8:00 a.m. - 12:15 p.m.

Salon 3

Session 1: Atherosclerotic Vascular Disease

8:00 a.m. - 8:15 a.m.

Introduction

Session Chairs: Elliot Chaikof and Masanori Aikawa

8:15 a.m. - 8:50 a.m.

Inflammatory Mechanisms in Atherosclerosis

Peter Libby, Chief, Cardiovascular Division, Department of Medicine, Brigham and Women's Hospital; Professor of Medicine, Harvard Medical School

8:50 a.m. - 9:20 a.m.

Abstract Presentations

The Matrix-binding Domain of Microfibril-associated Glycoprotein-1 Targets Active Connective Tissue Growth Factor to a Fibroblast-produced Extracellular Matrix (Young Investigator Award)

Justin Weinbaum, Robert Tranquillo, Robert Mecham; University of Minnesota, Minneapolis, MN; Washington University, St. Louis, MO

Cd11c/cd18 Expression Is Upregulated On Blood Monocytes During Hypertriglyceridemia And Enhances Adhesion To Vcam-1

R. Michael Gower, Huaizhu Wu, Christie Ballantyne, Anne Knowlton, Scott Simon; University of California, Davis, CA; Baylor College of Medicine, Houston, TX

9:20 a.m. - 9:55 a.m.

Role of Monocyte Trafficking and Differentiation in Atherosclerosis

Gwendolyn Randolph, Assistant Professor of Gene and Cell Medicine, Mount Sinai School of Medicine

9:55 a.m. - 10:20 a.m.

Coffee Break

10:20 a.m. - 10:55 a.m.

Drug Eluting Stents: Pathophysiologic Mechanisms and Implications

Renu Virmani, President and Medical Director, CV Path Institute

10:55 a.m.-11:40 a.m.

Abstract Presentations

A20 Regulates eNOS Expression And Activity In Human Coronary Artery Endothelial Cells (Young Investigator Award)

Elzbieta Kaczmarec, Soizic Daniel, Sanah Essayagh, Lynn Choi, Cleide da Silva, Christiane Ferran; Beth Israel Deaconess Medical Center, Center for Vascular Biology Research, Division of Vascular Surgery and the Transplant Institute, Department of Surgery, Harvard Medical School, Boston, MA

Dll4-notch Signaling Participates In The Pathogenesis Of Obesity And Atherosclerosis: A Potential Common Mechanism For Cardiometabolic Disorders (Young Investigator Award)

Daiju Fukuda, Elena Aikawa, Filip K. Swirski, Cem Z. Gorgun, Gökhan S. Hotamisligil, Hideo Yagita, Masanori Aikawa; Cardiovascular Division, Department of Medicine, Brigham and Women's Hospital; Center for Systems Biology, Massachusetts General Hospital; Harvard Medical School, Boston, MA; Department of Genetics and Complex Diseases, Harvard School of Public Health, Boston, MA; Department of Immunology, Juntendo University School of Medicine, Tokyo, Japan

Apolipoprotein C-iii Promotes Foam Cell Formation Through The Induction Of The Macrophage Scavenger Receptor Lectin-like Ox-Ldl Receptor 1 (lox-1)
Chunyu Zheng, Frank Sacks, Akio Kawakami, Masanori Aikawa, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; Harvard School of Public Health, Boston, MA; Tokyo Medical and Dental University, Tokyo, Japan

11:40 a.m. - 12:15 a.m.

Ongoing Challenges in the Control of Vascular Wall Healing

Christian Weber, Professor and Director, Institute for Molecular Cardiovascular Research, Aachen University

12:15 p.m. - 1:15 p.m.
Salon 1-2, Salon 5-7

Luncheon

1:30 p.m. - 5:30 p.m.
Salon 3

Session 2: Controlling Vascular Remodeling in Multiple Dimensions

1:30 p.m. - 1:45 p.m.

Introduction

Session Chairs: *David Vorp and Art Coury*

1:45 p.m. - 2:20 p.m.

Hemodynamics and AAA Remodeling

Ronald Dalman, Professor of Vascular Surgery, Stanford University

2:20 p.m. - 2:50 p.m.

Abstract Presentations

Spatiotemporal Controlled Drug Delivery By Targeted Nanoparticles To Injured Vasculature (Young Investigator Award)

Juliana Chan, June-Wha Rhee, Gershon Golomb, Robert Langer, Omid Farokhzad; Massachusetts Institute of Technology, Cambridge, MA; Harvard Medical School, Boston, MA; Hebrew University of Jerusalem, Jerusalem, Israel

Glucose-mediated Loss Of Vascular A20 Contributes To Accelerated Atherosclerosis In Diabetes (Young Investigator Award)

Cleide Da Silva, Gautam Shrikhande, Salvatore Scali, Scott Damrauer, Eva Csizmadia, Michaela Matthey, Elzbieta Kaczmarek, Christiane Ferran; Department of Surgery, Division of Vascular Surgery, Center for Vascular Biology Research and the Transplant Institute, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA

2:50 p.m. - 3:25 p.m.

Translating Molecular Discoveries into New Therapies for AAA

*Alan Daugherty, Senior Associate Dean for Research,
Cardiovascular Research Center, University of Kentucky*

3:25 p.m. - 3:50 p.m.

Coffee Break

3:30 p.m. - 4:05 p.m.

Neovascularization vs. Cardiomyocyte Regeneration for Injured Myocardium

*Richard Lee, Department of Medicine (Cardiovascular Division), Brigham and Women's Hospital;
Professor of Medicine, Harvard Medical School*

4:05 p.m. - 4:50 p.m.

Abstract Presentations:

Mechanisms Of Frnk Inhibition Of Fak-dependent Signaling In Vascular Smooth Muscle Cells (Young Investigator Award)
Yevgeniya Koshman, Taehoon Kim, Miensheng Chu, Steven Engman, Rekha Iyengar, Seth Robia, Allen Samarel; Loyola University Medical Center, Maywood, IL

Cd47 Immobilized On The Surface Of Bypass Tubing Prevents Cell Attachment And Neutrophil Activation

Stanley Stachelek, Ivan Alferiev, Dennis Discher, David Eckmann, Robert Levy; Children's Hospital of Philadelphia, Philadelphia, PA

The Site-dependence Of Vein Graft Remodeling: A Non-human Primate Study

Peter Zilla, Loven Moodley, Melanie Black, Jacques Scherman, Thomas Franz; UCT, Cape Town, South Africa

4:50 p.m. - 5:25 p.m.

Engineered Angiogenesis

David Mooney, Professor of Bioengineering, School of Engineering and Applied Sciences, Harvard University

5:30 p.m.

Dinner on your own

5:30 p.m. - 7:00 p.m.

Executive Council Meeting

Friday, September 24, 2010

7:00 a.m. 8:00 a.m.

Salon Foyer

Continental Breakfast

7:30 a.m. - 4:00 p.m.

Registration Foyer

Registration Open

12:00 p.m. - 5:00 p.m.

Salon 4

Posters on Display

8:00 a.m.-12:00 p.m.
Salon 3

**Session 3: Cardiac Valve Biology,
Pathology and Regeneration**

8:00 a.m. - 8:15 a.m.

Introduction

Session Chairs: *Simon Hoerstrup and Elena Aikawa*

8:15 a.m. - 8:50 a.m.

**Mechanotransduction in Cardiac Valve Biology,
Pathology and Regeneration**

*Ajit Yoganathan, Regents Professor, Georgia Institute of
Technology*

8:50 a.m. - 9:35 a.m.

Abstract Presentations

Adhesion, Proliferation And Shear Stress-induced Changes
Of Human Endothelial Cells On Ecm Protein Bilayers

*Jaroslav Chlupac, Elena Filova, Tomas Riedel, Eduard Brynda,
Elzbieta Pamula, Murielle Remy-Zolghadri, Philippe Fernandez,
Richard Daculsi, Laurence Bordenave, Lucie Bacakova; Academy of
Sciences of the Czech Republic v.v.i., Prague, Czech Republic;
University of Science and Technology, Krakow, Poland; Inserm U577
Victor Segalen University, Bordeaux, France*

Discovery Of Shear-regulated And Side-specific Mirnas
And Mrnas In Human Aortic Valvular Endothelial Cells

*Casey Holliday, Randall Ankeny, Hanjoong Jo, Robert Nerem; Georgia
Institute of Technology; Emory University, Atlanta, GA.*

Discovery Benefits Of Electrospun Scaffolds, Elastogenic
Factors, And A Peritoneal Cavity & Bioreactor To
Engineer Vascular Constructs (Young Investigator Award)

*Chris Bashur, Anand Ramamurthi; Cleveland Clinic, Cleveland, OH;
Cleveland Clinic, Clemson University*

9:20 a.m. - 9:55 a.m.

Aortic Stenosis: A Preventable Epidemic?

*Nalini Rajamannan, Associate Professor of
Medicine (Cardiology), Northwestern University School of
Medicine*

09:55 a.m. - 10:20 a.m.

Coffee Break

10:20 a.m. - 11:20 a.m.

Abstract Presentations

Differential Gene Expression, Ecm Organization And
Multi-scale Mechanics Of The Aortic And Pulmonary
Valve

*Christopher Carruthers, Christina Alfieri, Erinn Joyce, Katherine
Yutzey, Michael Sacks; University of Pittsburgh, Pittsburgh, PA;
Cincinnati Children's Medical Center, Cincinnati, OH*

Hyperglycemia And Elastin Degradation Products Induce Osteogenesis In Vascular Smooth Muscle Cells By Activating The ELR1 Receptor

Narendra Vyavahare, Aditi Sinha; Clemson University, Clemson, SC

Combinatorial Assessment Of Side-specific Mechanosensitivity In Aortic Valve Interstitial Cells

Christopher Moraes, Morakot Likhitpanichkul, Cameron Lam, Bogdan Beca, Yu Sun, Craig Simmons; University of Toronto, Toronto, ON, Canada

Valvular Endothelial Expression Of Tie1 Mediates Late Gestational And Postnatal Remodeling Of The Extracellular Matrix During Semilunar Valve Morphogenesis

H Scott Baldwin; Vanderbilt University Med. Ctr., Nashville, TN

11:20 a.m. - 11:55 a.m.

The Road to Protect the Kidney Led to Unravel Unsuspected Mechanism of Longevity

Ariela Benigni, Head of Department of Molecular Medicine, University of Milan

12:00 p.m. - 12:45 p.m.

Salon 1-2, Salon 5-7

Luncheon

12:45 p.m. - 4:30 p.m.

Salon 3

Session 4: Congestive Heart Failure: An Emerging Frontier in Personalized Medicine

(Co-Sponsored by the Society for Cardiovascular Pathology)

12:45 p.m. - 1:00 p.m.

Introduction

Session Chairs: Frederick Schoen and Steven Schmidt

1:00 p.m. - 1:35 p.m.

Congestive Heart Failure: Challenges and Opportunities

Leslie Miller, Chief of Integrated Divisions of Cardiology; Professor of Medicine, Georgetown University School of Medicine

1:35 p.m. - 2:05 p.m.

Abstract Presentations

Vascular Remodeling In Transplant Arteriosclerosis: The Role Of A20

Clayton Peterson, Jeffrey Siracuse, Mark Fisher, Cleide Da Silva, Eva Csizmadia, Scott Damrauer, Peter Studer, Sanah Essayagh, Elzbieta Kaczmarek, Christiane Ferran; Beth Israel Deaconess Medical Center, Boston, MA

E-selectin Mediates Endothelial Progenitor Cell Homing In Response To Stromal Derived Factor-1 α -induced Neovascularization

Zhao-Jun Liu, Runxia Tian, Weijun An, Ying Zhuge, Yan Li, Hongwei Shao, Bianca Habib, Alan Livingstone, Omaid Velazquez; University of Miami, Miami, FL

2:05 p.m. - 2:40 p.m.

Impact of Genetic Analysis on Cardiomyopathy Diagnosis and Therapy

Christine Seidman, Department of Medicine (Cardiovascular Division), Brigham and Women's Hospital; Professor of Medicine, Harvard Medical School

2:40 p.m. - 2:55 p.m.

Abstract Presentation

Dynamic Visualization Of Single Cell Alignment And Quantification Of Matrix Remodeling And Cell Migration In Three

Yonggang Pang, Xiaoli Wang, Dongkeun Lee, Howard Greisler; Illinois Institute of Technology, Loyola Medical Center, Hines, IL; Xi'an Jiaotong University, Xi'an, China; Edward Hines Jr. VA Hospital, Hines, IL

2:55 p.m. - 3:30 p.m.

Novel Imaging Modalities in Gene- and Cell-Based Cardiac Therapies

Roger Hajjar, Professor of Medicine, Mount Sinai School of Medicine

3:30 p.m. - 4:00 p.m.

Abstract Presentations

Knitted Nitinol: A New Generation Of Constrictive External Veingraft Meshes

Peter Zilla, Loven Moodley, Michael Wolf, Deon Bezuidenhout, Mazin Sirry, Nasser Raffie, Wilhelm Lichtenberg, Melanie Black, Thomas Franz; UCT, Cape Town, South Africa; Medtronic Science and Technology, Minneapolis, MN

Pld1 Is Required For Endocardial Cell Transformation in Vitro

Daniel DeLaughter, H. Alex Brown, H. Scott Baldwin, Joey Barnett; Vanderbilt University Medical Center, Nashville, TN

4:00 p.m. - 4:35 p.m.

Local Nano- Therapies for Control of Cardiac Remodeling

Anthony Rosenzweig, Department of Medicine (Cardiovascular Division), Beth Israel Deaconess Medical Center; Professor of Medicine, Harvard Medical School

5:35 p.m.

Depart for Banquet in front of Cambridge Marriott Hotel

6:00 p.m. - 9:00 p.m. Banquet at the *John F. Kennedy Presidential Library and Museum (Transportation provided)*

9:00 p.m. Buses return to Cambridge Marriott

Saturday, September 25, 2010

7:00 a.m. - 8:00 a.m. Registration Open
Registration Foyer

7:00 a.m. - 9:00 a.m. **Dedicated Poster Session with Continental Breakfast**
Salon 4

9:00 a.m. - 1:15 p.m. **Session 5: Stem Cells and Cardiovascular Regeneration: New Initiatives in Translational Medicine**
Salon 3

9:00 a.m. - 9:15 a.m. **Introduction**
Session Chairs: *Howard Greisler and Joyce Bischoff*

9:15 a.m. - 9:50 a.m. **Emerging Therapeutic Implications of Insights from Cardiac Development**
Kenneth R. Chien, Professor of Basic Science, Harvard Stem Cell Institute, Massachusetts General Hospital

9:50 a.m. - 10:20 a.m. **Abstract Presentations**
Tissue Engineered Vascular Grafts: The Molecular Mechanism of Neotissue Creation
Narutoshi Hibino, Gustavo Villalona, Adam Shoffner, Dane Mejias, Edward McGillicuddy, Toshiharu Shinoka, Christopher Breuer; Yale University School of Medicine, New Haven, CT

Pericyte Based Human Tissue Engineered Vascular Grafts: Fabrication, Characterization And In Vivo Assessment
David Vorp, Wei He, Alejandro Nieponice, Lorenzo Soletti, Yi Hong, Burhan Gharaibeh, Mihaela Crisan, Bruno Peault, Johnny Huard, William Wagner; McGowan Institute for Regenerative Medicine, Pittsburgh, PA; Stem Cell Research Center, Pittsburgh, PA

10:20 a.m. - 10:55 a.m. **Endothelial Progenitor Cell Therapy**
Joyce Bischoff, Vascular Biology Program, Boston Children's Hospital; Associate Professor, Harvard Medical School

10:55 a.m. - 11:10 a.m.

Coffee Break

11:10 a.m. - 11:45 a.m.

Stem Cell Therapy for Myocardial Infarction

*Stefanie Dimmler, Professor of Molecular Cardiology,
University of Frankfurt*

11:45 a.m. - 12:30 p.m.

Abstract Presentations

**Cellular Plasticity Of Inflammatory Myeloid Cells In The
Peritoneal Foreign Body Response**

*Julie Campbell, Jane Mooney, Barbara Rolfe, David Hume, Gordon
Campbell; The University of Queensland, Brisbane, Queensland,
Australia*

**Channelrhodopsin-2 Enables Optogenetic Control Of
Human Embryonic Stem Cell-derived Cardiomyocytes**

*Oscar Abilez, Joshua Baugh, Madhu Gorrepati, Christopher Lee-
Messer, Mei Huang, Rohit Prakash, Kitchener Wilson, Joseph Wu,
Karl Deisseroth, Christopher Zarins; Stanford University, Stanford,
CA; , et al.*

**Electrically Activated Cell Sorting Of Induced Pluripotent
Stem Cell-derived Cardiomyocytes**

*Oscar Abilez, Frankie Myers, Luke Lee, Christopher Zarin; Stanford
University, Stanford, CA; University of California, Berkeley, CA*

12:30 p.m. - 1:05 p.m.

**Cardiovascular Derivatives of Pluripotent Stem Cells in
Drug Safety and Discovery**

*Christine Mummery, Professor of Developmental Biology,
Leiden University Medical Center*

1:05 p.m.

Meeting Adjourned