

VASCULAR MATRIX BIOLOGY AND BIOENGINEERING WORKSHOP II
MARCH 16-19 - WHISTLER, BC
MEETING PROGRAM

MONDAY, MARCH 16, 2009

Welcome and Keynote Lecture

7:00 – 8:15PM—Sea to Sky Ballroom B

- 7:00 Welcome and Introduction
 Cecilia M. Giachelli, *University of Washington*
 Michelle P. Bendeck, *University of Toronto*
 Elaine C. Davis, *McGill University*
 Themis Kyriakides, *Yale University*
- 7:10 Manipulating the extracellular matrix to advantage in reversing vascular pathology
 Marlene Rabinovitch, *Stanford University School of Medicine*
- 8:15 ***Welcome Reception***
 Grand Foyer

TUESDAY, MARCH 17, 2009

Matrix Remodeling in Vascular Disease

8:00 – 10:00AM—Sea to Sky Ballroom B

- Chair: ***David Courtman***, *University of Toronto*
- 8:00 Molecular pathology of rupture aneurysm in mouse models of Marfan syndrome
 Francesco Ramirez, *Mount Sinai School of Medicine*
- 8:30 Diabetes, hyperlipidemia and cardiovascular disease: Role of vascular proteoglycans
 in atherosclerosis
 Lisa Tannock, *University of Kentucky*
- 9:00 Mechanisms of intimal atrophy after vascular reconstruction
 Alexander Clowes, *University of Washington*
- 9:30 *Abstract presentation:* Anti-inflammatory serpin peptides derived from the
 reactive site loop (RSL) of myxomavirus serpin and mammalian neuroserpin
 reduce monocyte activation
 Alexandra R. Lucas, *University of Florida, Gainesville*
- 9:45 *Abstract presentation:* Effect of chemical MMP inhibitors on POVPC- and II1-beta
 induced phenotypic switching of smooth muscle cells
 Olga A. Cherepanova, *University of Virginia*
- 10:00 ***Coffee Break***

Matrix Genetics and Development

10:30AM – 12:30PM—Sea to Sky Ballroom B

- Chair: ***William Parks***, *University of Washington*
- 10:30 Influence of elastin on vascular wall development
 Elaine C. Davis, *McGill University*

- 11:00 Genetic mutations disrupting the matrix and leading to human vascular diseases
Dianna Milewicz, *University of Texas Health Sciences Center at Houston*
- 11:30 Vascular adaptation to mutations in structural matrix proteins
Robert P. Mecham, *Washington University Medical School*
- 12:00 *Abstract presentation:* Extracellular activity of Granzyme B contributes to abdominal aortic aneurysm
Lisa S. Ang, *The James Hogg iCAPTURE Centre*
- 12:15 *Abstract presentation:* Regulation of monocyte recruitment and macrophage accumulation in atherosclerosis by discoidin domain receptor 1
Christopher Franco, *University of Toronto*
- 12:30 **Lunch**
Mountain View
- 2:00 **View Posters and Exhibits**
Sea to Sky Ballroom C

Matrix Calcification I : Arteries

3:30 – 5:30PM—Sea to Sky Ballroom B

- Chair: **Pierre Moreau**, *Université de Montréal*
- 3:30 Mechanisms of vascular calcification in chronic kidney disease
Keith A. Hruska, *Washington University in St. Louis*
- 4:00 Role of bone morphogenetic proteins in vascular disease
Kristina I. Bostrom, *University of California, Los Angeles*
- 4:30 The determinants of vascular calcification: Lessons learned from mouse models
Monzur Murshed, *McGill University*
- 5:00 *Abstract presentation:* Arterial calcification is driven by RAGE in Enpp1^{-/-} mice
Robert A. Terkeltaub, *University of California San Diego*
- 5:15 *Abstract presentation:* NADPH Oxidase / Nox signaling stimulates myofibroblast Msx2 transcription via hydrogen peroxide
Chung-Fang Lai, *Washington University in St. Louis*
- 5:30 *Dinner - On your own*

POSTER SESSION

7:00 – 10:00PM—Sea to Sky Ballroom C

Posters on odd numbered boards will be manned today from 7:00 to 9:00pm

The list of poster sessions can be found on page 1; full abstracts begin on page 15

WEDNESDAY, MARCH 18, 2009

Matrix Signaling

8:00 – 10:00AM—Sea to Sky Ballroom B

- Chair: **Thomas N. Wight**, *Benaroya Research Institute, The Hope Heart Program*
- 8:00 Cell adhesion, shape, and mechanical regulation of endothelial cell function
Christopher Chen, *University of Pennsylvania*

- 8:30 Use of non-linear optical approaches to understand cellular responses to collagen matrix compliancy
Patricia Keely, *University of Wisconsin*
- 9:00 Matrix components regulating endothelial tip cell behavior
Holger Gerhardt, *London Research Institute-Cancer Research UK*
— EMBO Young Investigator Lecture
- 9:30 **Special Tribute to B. Lowell Langille**
Avrum I. Gotlieb, *University of Toronto*
- 9:45 *Abstract presentation:* Controlling cell polarity through functions of N-cadherin in migrating vascular smooth muscle cells
Peter J. Sabatini, *University of Toronto*

10:00 *Coffee Break*

Matrix Calcification II: Valves

10:30AM – 12:30PM—Sea to Sky Ballroom B

Chair: **Avrum I. Gotlieb**, *University of Toronto*

- 10:30 Elastin calcification: Mechanisms and prevention
Narendra R. Vyavahare, *Clemson University*
- 11:00 Heart Valve Degeneration: Role of cells, matrix and environment
Frederick J. Schoen, *Brigham & Women's Hosp/Harvard Medical School*
- 11:30 Aortic Valve Calcification: The role of a tissue stem niche
Nalini M. Rajamannan, *Northwestern University*
- 12:00 *Abstract presentation:* Differentiation of valve interstitial cells leading to calcification is modulated by the stiffness of the extracellular matrix
Craig A. Simmons, *University of Toronto*
- 12:15 *Abstract presentation:* Role of AGEs and RAGE in diabetes-induced acceleration of elastocalcinosis
Céline Bouvet, *University of Montreal*
- 12:30 **Lunch**
Mountain View
- 2:00 **View Posters and Exhibits**
Sea to Sky Ballroom C

Vascular Networks and Cardiovascular Engineering

3:30 – 5:30PM—Sea to Sky Ballroom B

Chair: **Tara Haas**, *York University*

- 3:30 Adult stem cells for engineering functional and implantable blood vessels
Stelios Andreadis, *State University of New York, Buffalo*
- 4:00 Evaluation of the cellular and molecular mechanisms of vascular neotissue formation in tissue engineered vascular grafts
Christopher K. Breuer, *Yale University School of Medicine*
- 4:30 Programming vascularization with materials
Eduardo Silva, *Harvard University*

- 5:00 *Abstract presentation:* Development of a novel cardiac tissue engineering construct using a templated fibrin scaffold with a microporous and microchanneled architecture
Kassandra S. Thomson, *University of Washington*
- 5:15 *Abstract presentation:* Stromal cells support vascularization of a human embryonic stem cell-derived cardiac tissue patch
Kareen L. Kreutziger, *University of Washington*
- 5:30 *Dinner - On your own*

POSTER SESSION

7:00 – 10:00PM—Sea to Sky Ballroom C

Posters on even numbered boards will be manned today from 7:00 - 9:00 pm

The list of poster sessions can be found on page 1; full abstracts begin on page 15

THURSDAY, MARCH 19, 2009

Vascular Cell-Biomaterial Interactions

8:00 – 10:00AM—Sea to Sky Ballroom B

Chair: ***Craig Simmons***, *University of Toronto*

- 8:00 Matrix control of vasculogenesis
Laura J. Suggs, *University of Texas at Austin*
- 8:30 Using biomaterials to decipher the instructive role of the extracellular matrix in capillary morphogenesis
Andrew Putnam, *University of California, Irvine*
- 9:00 The interplay of structure, chemistry, and properties in tissue-engineered small diameter blood vessels
Joyce Y. Wong, *Boston University*
- 9:30 *Abstract presentation:* Characterization of a thromboresistant and pro-angiogenic extracellular matrix
Themis Kyriakides, *Yale University*
- 9:45 *Abstract presentation:* Bioengineered human microvessels by co-graftment of endothelial cells and pericytes
Benjamin R. Shepherd, *Yale University*
- 10:00 *Coffee Break*

Vascular Morphogenesis/Stem Cells

10:30AM – 12:30PM—Sea to Sky Ballroom B

Chair: ***Todd McDevitt***, *Georgia Institute of Technology*

- 10:30 Nanofibrous scaffolds and mesenchymal stem cells for vascular regeneration
Song Li, *University of California, Berkeley*
- 11:00 Fat depot pericytes: A vascular niche for adipocytes
Michelle D. Tallquist, *University of Texas Southwestern Medical Center*
- 11:30 Extracellular matrix remodeling controls EC-pericyte tube coassembly
George E. Davis, *University of Missouri*

- 12:00 *Abstract presentation: Laminin a4 regulates angiogenic sprouting by modulating Dll4/Notch signalling*
Denise Stenzel, *Cancer Research UK*
- 12:15 *Embryonic stem cell-derived matrices: New insights and opportunities for regenerative molecular therapies*
Todd McDevitt, *Georgia Institute of Technology*
- 12:30 *Closing remarks*
- 12:45 *Program concludes*
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The following presenters have indicated a relationship which, in the context of their presentation, could be perceived by some as a real or apparent conflict of interest but do not consider that it will influence their presentation. The number following each company name represents the specific relationship from the list below. If a presenter is not listed, then he/she had no relationship to disclose. For full-time employees of industry, the affiliation listed in the Program will constitute full disclosure.

C. K. Breuer: Gunze Copr – 2; Pall Corp – 2; Cytograft – 2
K. A. Hruska: Shire – 1,5; Genzyme – 1,5; Fresenius – 1
A. R. Lucas: Viron Therapeutics, Inc. – 1,2,5
R. P. Mecham: Proteon Corporation – 5
D. J. Mooney: InCytu Corporation – 6
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1. stock options or bond holdings in a for-profit corporation or self-directed pension plan
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Visit the Exhibits!

Tuesday, 2:00 to 3:30pm and 7-10pm

Wednesday, 2:00 to 3:30pm and 7-10pm

Exhibits are located in the Sea to Sky Ballroom C. Exhibits are held in conjunction with the poster sessions (Tuesday and Wednesday from 7:00-10:00pm) and from 2:00 to 3:30pm, also on Tuesday and Wednesday.