WELCOME AND OPENING PLENARY SESSION
6:30 – 8:30pm — Grand Ballroom

Chairs:  William C. Aird, Beth Israel Deaconess Medical Center, Harvard Medical School
         IVBM Organizing Committee Chair
         Michael Gimbrone, Jr., Brigham and Women’s Hospital, Harvard Medical School
         NAVBO Co-Founder

6:30 Welcome
William C. Aird

6:35 NAVBO and the IVBM - Background
Michael A. Gimbrone, Jr.

6:40 Targeting Endothelial Cell Metabolism: Principles and Therapeutic Potential
Peter Carmeliet, VIB - Vesalius Research Center, University of Leuven

7:25 Inflammation and Atherothrombosis: A Clinical Investigator’s Perspective
Paul Ridker, Brigham and Women’s Hospital, Harvard Medical School

8:10 Recognition of Collaborating Societies
William C. Aird

8:12 Presentation of Travel Awards
Nobuyuki Takakura, Osaka University for the Japanese Vascular Biology and Medicine Organization
Jan Kitajewski, University of Illinois Chicago for the North American Vascular Biology Organization
Jozef Dulak, Jagiellonian University and Anna Randi, Imperial College London for the European Vascular Biology Organization
Christopher Hughes, University of California, Irvine for Edwards Lifesciences Center for Advanced Cardiovascular Technology at UC Irvine
William C. Aird will present the Nature Communications Travel Award

8:22 Invitation to Reception Hosted by Kowa
Craig A. Sponseller, Chief Medical Officer
Kowa Pharmaceuticals America, Inc.

WELCOME RECEPTION HOSTED BY KOWA
8:30 – 10:00pm — Grand Ballroom Foyer

Light Refreshments
ATHEROSCLEROSIS I
Co-sponsored by the Canadian Society of Atherosclerosis, Thrombosis and Vascular Biology
8:30 – 10:00am — Independence Ballroom

Chairs: Katie Rayner, University of Ottawa Heart Institute and Francis W. Luscinskas, Brigham and Women’s Hospital, Harvard Medical School

8:30 Inflammatory networks in cardiovascular disease
Matthias Nahrendorf, Massachusetts General Hospital, Harvard Medical School

9:00 001 - Exploiting macrophage autophagy-lysosomal biogenesis as a therapy for atherosclerosis
Babak Razani, Washington University School of Medicine

9:15 Targeting the immune response in ischemic cardiovascular disease
Ziad Mallat, University of Cambridge

9:45 002 - Macrophage necroptosis is activated in vulnerable atherosclerotic plaques in humans and drives lesion development in mice
Katey Rayner, University of Ottawa Heart Institute

ENDOTHELIAL CELLS
8:30 – 10:00am — Republic Ballroom

Chairs: Kayla Bayless, Texas A&M Health Science Center and Marsha Moses, Boston Children’s Hospital, Harvard Medical School

8:30 Organ-specific and functional specialization of blood vessels
Ralf Adams, Max-Planck Institute for Molecular Biomedicine

9:00 003 - Haploinsufficiency of Klippel-Trenaunay syndrome gene Aggf1 inhibits developmental and pathological angiogenesis by inactivating PI3K and AKT and disrupts vascular integrity by activating VE-cadherin
Qing Wang, Huazhong University of Science and Technology

9:15 Autophagic and metabolic regulation of vascular function
Toren Finkel, NIH/NHLBI

9:45 004 - Mechanisms of arterial lining regeneration in vivo
Austin McDonald, UCLA-Caltech Medical Scientist Training Program

DEVELOPMENT
Co-sponsored by Cure HHT
8:30 – 10:00am — Back Bay Ballroom C

Chairs: Courtney Griffin, Oklahoma Medical Research Foundation and Rosemary Akhurst, University of California, San Francisco

8:30 Functional plasticity in vascular networks - a developmental perspective
Holger Gerhardt, Max-Delbrueck-Center for Molecular Medicine
9:00  005 - Determination of developmental phosphate transport mechanisms.  
Mary Wallingford, University of Washington

9:15  How blood vessels form in space and time  
Victoria Bautch, University of North Carolina at Chapel Hill

9:45  006 - Androgen Dependent TFPI-Regulating Protein (ADTRP) plays an important role in vascular development by regulating Wnt signaling  
Maulin Patel, Oklahoma Medical Research Foundation

**NEW ROLES OF LYMPHATICS IN DISEASE**
Co-sponsored by Lymphatic Education and Research Network  
8:30 – 10:00am — Back Bay Ballroom D

**Chairs:**  
Stanley Rockson, Stanford University School of Medicine and  
Kari Alitalo, Biomedicum Helsinki/Univ Helsinki

8:30  Transcriptional profiling of lymphatic endothelial cells  
Guillermo Oliver, Northwestern University

9:00  007 - Vegfc acts through ERK to induce sprouting and differentiation of trunk lymphatic progenitors  
Masahiro Shin, University of Massachusetts Medical School

9:15  Immune implications of lymphangiogenesis in inflammation  
Melody Swartz, University of Chicago

9:45  008 - VEGF-C modulates post-myocardial infarction lymphangiogenesis and inflammation  
Sophie Norman, University of Oxford

*Coffee Break—Ballroom Foyer*

**THROMBOSIS**
10:30am – 12:00pm — Back Bay Ballroom C

**Chairs:**  
Nigel Mackman, University of North Carolina, Chapel Hill and  
Xiaoping Du, University of Illinois at Chicago

10:30  Pathological impact of Neutrophil Extracellular Traps (NETs)  
Denisa Wagner, Boston Children’s Hospital, Harvard Medical School

11:00  009 - Differential contribution of platelet derived HMGB1 redox forms to venous thrombosis  
Konstantin Stark, Ludwig Maximilians Universität

11:15  Regulation of von Willebrand factor adhesive function  
Jose Lopez, Puget Sound Blood Center

11:45  010 - Tuning the endothelial response: Differential release of exocytic cargoes from Weibel Palade Bodies.  
Thomas Nightingale, Queen Mary University of London
**SMOOTH MUSCLE CELLS**
Co-sponsored by Canadian Society of Arteriosclerosis, Thrombosis and Vascular Biology
10:30am – 12:00pm — Independence Ballroom

**Chairs:** Michelle Bendeck, University of Toronto and
Mark Majesky, University of Washington School of Medicine

10:30  Pericytes in health and disease
Christa Betsholtz, Uppsala University

11:00  011 - Molecular regulation of vascular smooth muscle cell recruitment to arteries during development
Amber Stratman, NICHD/NIH

11:15  SMC phenotypic transitions play a key role in the pathogenesis of advanced atherosclerotic lesions
Gary Owens, University of Virginia Health System

11:45  012 - Loss of YY1AP1 alters smooth muscle cell phenotype and leads to fibromuscular dysplasia in Grange syndrome
Callie Kwartler, University of Texas Health Science Center at Houston

**ANGIOGENESIS AND ARTERIOGENESIS I**
Co-sponsored by European Vascular Biology Organization
10:30am – 12:00pm — Republic Ballroom

**Chairs:** Rong Wang, University of California, San Francisco and
Anna Randi, Imperial College London/National Heart and Lung Institute

10:30  Common and distinct operative mechanisms during vascular growth and sprouting angiogenesis
Luisa Iruela-Arispe, University of California, Los Angeles

11:00  013 - Endothelial expression of slug regulates angiogenesis by modulating notch signaling and EndoMT
Nan Hultgren, University of California Irvine

11:15  New regulators of vascular sprouting and remodeling
Young-Guen Kwon, Yonsei University

11:45  014 - Adult endothelial Akt1 expression is critical for in vivo PI3K/Akt1-eNOS functionality
Monica Lee, Yale University

**DRUG DISCOVERY/GENE THERAPY**
Co-sponsored by Japanese Vascular Biology and Medicine Organization
10:30am – 12:00pm — Back Bay Ballroom D

**Chairs:** Ken Walsh, Boston University School of Medicine and
Kensuke Egashira, Kyushu University

10:30  Systems biology of macrophage activation: Target discovery for cardiometabolic inflammation
Masanori Aikawa, Brigham and Women’s Hospital, Harvard Medical School
11:00 015 - Development and pre-clinical testing of Magacizumab, a fully humanized anti-angiogenic monoclonal antibody against LRG1
Stephen Moss, UCL Institute of Ophthalmology

11:15 New technology to unravel microvascular behavior in the in vivo niche
Grietje Molema, Univ. Medical Ctr. Groningen

11:45 016 - Spatial inhibition of atherogenic miR-92a by targeted polyelectrolyte complex micelles in ApoE/-/ mice
Myung-Jin Oh, University of Chicago

Lunch—Grand Ballroom
12:00 to 2:00pm

POSTER SESSION I AND EXHIBITS
12:00—2:00 pm
Constitution Ballroom:

THROMBOSIS - Boards 1 through 10
ANGIOGENESIS AND ARTERIOGENESIS - Boards 11 through 47
DRUG DISCOVERY/GENE THERAPY - Boards 48 through 54
PULMONARY HYPERTENSION - Boards 55 through 59
LARGE VESSEL DISEASE OUTSIDE THE HEART - Boards 60 through 78
MICROCIRCULATION - Boards 79 through 86
SMOOTH MUSCLE CELLS - Boards 87 through 98

Ballroom Foyer:

SMOOTH MUSCLE CELLS - Boards 99 through 106
ENDOTHELIAL CELLS I - Boards 107 through 136
DEVELOPMENT - Boards 137 through 148

Liberty Ballroom:

DEVELOPMENT - Boards 149 through 150
LYMPHATICS - Boards 151 through 162

Presenters will alternate times as follows:
Presenters at odd numbered boards will present from 12:00 pm to 1:00 pm;
Presenters at even numbered boards will present from 1:00 pm to 2:00 pm

Visit the Exhibits - see guide on pages xii & xiii
PULMONARY HYPERTENSION
2:00 – 3:30pm — Back Bay Ballroom C

Chairs: Troy Stevens, University of South Alabama and Paul Yu, Brigham and Women's Hospital, Harvard Medical School

2:00 Metabolic reprogramming and inflammation act in concert to control vascular remodeling in hypoxic pulmonary hypertension
Kurt Stenmark, University of Colorado Denver

2:30 017 - Supra-physiological shear stress unveils endothelial heterogeneity in the lungs of patients with Pulmonary Arterial Hypertension
Robert Szulcek, VU University Medical Center

2:45 The metabolic basis of vascular disease and pulmonary arterial hypertension
Evangelos Michelakis, University of Alberta

3:15 018 - Nuclear receptor Nur77 is a novel regulator in pulmonary arterial hypertension
Konda Babu Kurakula, Leiden University Medical Center

MICROCIRCULATION
2:00 – 3:30pm — Independence Ballroom

Chairs: David Zawieja, Texas A&M Health Science Center and W. Lee Murfee, Tulane University

2:00 Redox regulation of microvascular function in humans
David Gutterman, Medical College of Wisconsin

2:30 019 - Regenerative angiogenesis in ischemic muscle produces a flawed microcirculation that poorly controls blood flow
John-Michael Arpino, Robert's Research Institute, Western University

2:45 Is it time to think big about coronary microvessels?
William Chilian, Northeastern Ohio Medical University

3:15 020 - Calreticulin at myoendothelial junctions selectively regulates calcium events and negative feedback to vasoconstriction
Lauren Biwer, University of Virginia

EXTRACELLULAR MATRIX
2:00 – 3:30pm — Republic Ballroom

Chairs: Thomas Wight, Benaroya Research Institute and Robert Mecham, Washington University Medical School

2:00 Integrin-dependent crosstalk between microglia and vasculature
Tatiana Byzova, Lerner Research Institute, Cleveland Clinic

2:30 021 - Role of Alu RNA editing in HuR-mediated gene expression of extracellular matrix degradation enzymes in atherosclerotic heart disease
Marco Sachse, Goethe University Frankfurt

2:45 Fluid shear stress mechanotransduction in vascular health and disease
Martin Schwartz, Yale School of Medicine
3:15 022 - Loss of COL15A1 in SMC unveils a novel role for the collagen in atherosclerosis pathogenesis
Brittany Durgin, University of Virginia

**IMAGING**
2:00 – 3:30pm — Back Bay Ballroom D

*Chairs:* Christopher Carman and Roberta Martinelli, Beth Israel Deaconess Medical Center, Harvard Medical School

2:00 Imaging leukocyte recruitment dynamics and blood brain barrier function during viral encephalitis
Mark Miller, Washington University School of Medicine

2:30 023 - Combined in vivo photoacoustic and confocal imaging of angiogenesis reveals hemodynamics and heterogenous fluorescent reporter expression in endothelial cells
Molly Kelly-Goss, University of Virginia

2:45 Coronary artery molecular imaging: Translational insights
Eric A. Osborn, Beth Israel Deaconess Medical Center, Harvard Medical School

3:15 024 - Tissue clearing and unbiased image analysis shows the role of VEGFA in defining the vascular niche of tissue resident skeletal muscle stem cells (MuSCs)
Mayank Verma, University of Minnesota

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**Monday, October 31 — 4:00pm-6:15pm (check session time)**

**LARGE VESSEL DISEASE**
Co-sponsored by Japanese Vascular Biology and Medicine Organization
4:00 – 5:30pm — Independence Ballroom

*Chairs:* Philip Tsao, Stanford University School of Medicine and Hironori Nakagami, Graduate School of Medicine, Osaka University

4:00 Micro-RNA's in Peripheral Arterial Disease
Brian Annex, University of Virginia

4:30 025 - mTORC1 hyperactivation due to Tsc1 disruption impairs postnatal smooth muscle cell differentiation and induces aortic pathology
Guangxin Li, Yale School of Medicine

4:45 Recent progress in molecular medicine on critical limb ischemia; from regenerative medicine to vaccine
Ryuichi Morishita, Osaka University School of Medicine

5:15 026 - Microvesicle analysis in large vessel vasculitis reveals a distinct phenotype of endothelial origin
Allan Kiprianos, Imperial College London
ANGIOGENESIS AND REGENERATION
Sponsored by Japanese Vascular Biology and Medicine Organization
4:00 – 6:00pm — Republic Ballroom

Chairs: Issei Komuro, University of Tokyo and
Ralf Adams, Max-Planck Institute for Molecular Biomedicine

4:00 Neuro-vascular crosstalk in the developing retina
Yoshiaki Kubota, Keio University

4:25 Reassessing ERK in vascular development: a major role for sprouting, but not artery differentiation
Nathan Lawson, University of Massachusetts Medical School

4:50 Role of miRNAs in embryonic hematopoiesis
Akiko Hata, University of California, San Francisco

5:15 Generation of blood-brain barrier model derived from human iPS cells for analyzing drug kinetics and neuro-vascular unit
Kohei Yamamizu, Kyoto University (a JVBMO Young Scientist)

5:30 027 - Mitofusin 2 couples metabolic activity to the unfolded protein response during pro-angiogenic transitions in endothelial cells
Gladys A. Ngoh, Boston University School of Medicine

5:45 028 - Non-HIF-regulated hypoxic responses control nerve-mediated arterial branching in the developing skin
Wenling Li, NIH

Monday, October 31 — Exhibitor Showcases

THERMO FISHER SCIENTIFIC
4:00 – 5:00pm — Back Bay Ballroom C
Targeted proteomics performed on the Q Exactive permits to study the metabolism of circulating apolipoproteins
Sasha A. Singh
Center for Interdisciplinary Cardiovascular Sciences
Brigham and Women’s Hospital

Translational Proteomics Workflows for Extending the Profiling Range of Plasma/Serum
Scott Peterman and David Sarracino
Thermo Fisher Scientific BRIMS

APPLIED BIOPHYSICS
5:15 – 6:15pm — Back Bay Ballroom D
Protocols for Measuring Endothelial Barrier Function with ECIS from TEER across transwell filters to large scale screens on 96 well plates
Christian Renken
Applied BioPhysics
E PLURIBUS UNUM: THE “VASCULOME?”
6:15 – 8:00pm — Republic Ballroom

Chairs/Organizers: Marc Charette, Zorina Galis and Pothur Srinivas, NHLBI/NIH

The National Heart Lung and Blood Institute (NHLBI) is organizing a workshop and discussion forum open to the entire audience of IVBM 2016 to explore the timeliness of creating “The Vasculome,” an integrated, multi-dimensional, multi-scale map of the human vasculature. This session consists of short presentations in each aspect of this new concept: Biology and Technology, followed by open discussions.

BIOLGY

6:15 Overview
Zorina Galis
Division of Cardiovascular Sciences
National Heart, Lung, and Blood Institute

6:25 Renata Pasqualini
Division of Molecular Medicine
University of New Mexico Cancer Center

6:35 Anthony Paul Barnes
Knight Cardiovascular Institute
Oregon Health & Science University

6:45 Mark Majesky
University of Washington School of Medicine

6:55 Open Discussion - Biology

TECHNOLOGY

7:05 Ravi Iyengar
Systems Biology Center New York (SBCNY)
Mount Sinai School of Medicine

7:15 Orit Rozenblatt-Rosen
Klarman Cell Observatory
Broad Institute

7:25 Alex Shalek
Institute for Medical Engineering and Science
Massachusetts Institute of Technology

7:35 Open Discussion - Technology

7:45 Open Discussion - Overall Program
**EYE OPENER SESSIONS FOR TRAINEES:**

**MEET THE PROFESSOR**

**OPPORTUNITIES IN CARDIOVASCULAR RESEARCH:**

**AN EDITOR’S PERSPECTIVE WITH ALAN DOUGHERTY**

**WOMEN IN SCIENCE: A PANEL DISCUSSION**

Tickets required
7:30 – 8:15am — Third Floor
See page xvii

**ATHEROSCLEROSIS II**
Co-sponsored by Korean Vascular Science and Medicine Organization
8:30 – 10:00am — Independence Ballroom

**Chairs:** Jun-ichi Abe, University of Texas MD Anderson Cancer Center and Michael A. Gimbrone, Jr., Brigham and Women's Hospital, Harvard Medical School

8:30 Mechanism of calcification in atherosclerosis: Role of bone-marrow-derived calcifying progenitors
Hyo-Soo Kim, Seoul National University

9:00 029 - Role of adenosine-to-inosine RNA editing in human atherosclerosis
Konstantinos Stellos, Goethe University Frankfurt

9:15 Defective inflammation resolution in atherosclerosis: Mechanisms and therapeutic implications
Ira Tabas, Columbia University Medical Center

9:45 030 - Calpain-6 potentiates pro-atherogenic pinocytosis in macrophages
Takuro Miyazaki, Showa University School of Medicine

**HEART**
8:30 – 10:00am — Back Bay Ballroom D

**Chairs:** S. Abdelliah-Seyfried, Universität Potsdam Abteilung and Stefan Chlopicki, Jagiellonian University

8:30 Hemodynamic control of heart valve development
Mark Kahn, University of Pennsylvania

9:00 031 - Endothelial Notch signaling controls the flux of nutrients to muscle cells
Andreas Fischer, German Cancer Research Center

9:15 Reactivation of endothelial-to-mesenchymal transition as mechanism for mitral valve adaptation
Joyce Bischoff, Boston Children's Hospital, Harvard Medical School

9:45 032 - VEGFR2 signaling mediates endothelial cell to cardiomyocyte crosstalk in cardiac hypertrophy
Riikka Kivelä, University of Helsinki and Wihuri Research Institute

**VASCULAR REMODELING**
8:30 – 10:00am — Republic Ballroom

**Chairs:** C. Keith Ozaki, Brigham and Women's Hospital, Harvard Medical School and Mark Feinberg, Brigham and Women's Hospital, Harvard Medical School

8:30 Immune mechanisms in cardiovascular disease
David G. Harrison, Vanderbilt University School of Medicine
9:00  033 - Erk5 inhibits expression of Angiopoietin 2 in the neonatal lung and orchestrates vascular stabilization in the perinatal period
Irinna Papangeli, Yale School of Medicine

9:15  The influence of non-coding RNA on vascular pathophysiology
Andrew Baker, University of Edinburgh

9:45  034 - The microtubule binding protein Rudhira regulates vascular remodeling by modulating transforming growth factor β signaling
Maneesha Inamdar, Jawaharlal Nehru Centre for Advanced Scientific Research

**TRANSCRIPTION AND EPIGENETICS I**
8:30 – 10:00am — Back Bay Ballroom C

**Chairs:** Marianne Grant, Beth Israel Deaconess Medical Center and Rama Natarajan, Beckman Research Institute of City of Hope

8:30  Epigenetic regulation of endothelial phenotype: The role of the non coding genome
Philip Marsden, University of Toronto

9:00  035 - Downregulation of novel anti-inflammatory lncRNA DRAIR by Type 2 Diabetes enhances inflammatory responses in human monocytes
Marpadga A. Reddy, Beckman Research Institute of City of Hope

9:15  Transcriptional and epigenetic regulation in vascular smooth muscle cells
Kathleen Martin, Yale School of Medicine

9:45  036 - ETS1 promotes angiogenesis by stimulating RNA Polymerase II pausing release
Bing Zhang, Shanghai Jiao Tong University

**Coffee Break—Ballroom Foyer**

**Tuesday, November 1 — 10:30am-12:00pm**

**NEUROVASCULAR DISEASE**
10:30am – 12:00pm — Independence Ballroom

**Chairs:** Elisabetta Dejana, Uppsala University and University of Milan and Chenghua Gu, Harvard Medical School

10:30  Novel insight into the pathogenesis of CADASIL
Anne Joutel, Inserm U1161, Genetics and Pathogenesis of Cerebrovascular Diseases

11:00  037 - Sphingosine- 1-phosphate receptor 1 activation in brain endothelial cells after subarachnoid hemorrhage in mice
Josephin Wagner, University Hospital Zurich

11:15  Neurovascular dysfunction and cognitive impairment
Costantino Iadecola, Weill Cornell Medical College

11:45  038 - Size-selective blood-brain barrier opening by targeting endothelial sphingosine 1-phosphate receptor 1
Keisuke Yanagida, Weill Cornell Medical College
LIVER
10:30am – 12:00pm — Back Bay Ballroom D

Chairs: Tatsuhiko Kodama, University of Tokyo and Sergij Goerdt, Heidelberg University

10:30  From angioocrine signaling to vascular maturation: Epigenetic control of vascular maturation
Hellmut Augustin, German Cancer Research Center and Heidelberg University

11:00  039 - Molecular regulation of hepatic microvascular differentiation and function determines liver development, fetal hematopoiesis, and angioocrine control of iron homeostasis
Cyrill Géraud, Heidelberg University

11:15  Biology of the hepatic sinusoids
Vijay Shah, Mayo Clinic

11:45  040 - Ablation of Beta and Gamma-catenin contributes to loss of blood bile barrier
Tirthadipa Pradhan, University of Pittsburgh

IMMUNITY I
Co-sponsored by American Society for Nephrology
10:30am – 12:00pm — Republic Ballroom

Chairs: William Muller, Feinberg School of Medicine, Northwestern University and Ananth Karumanchi, Beth Israel Deaconess Medical Center, Harvard Medical School

10:30  Leukocyte trafficking in renal autoimmune disease
Tanya N. Mayadas, Brigham and Women's Hospital, Harvard Medical School

11:00  041 - A genomic regulatory element controls segmental differentiation and regional immunity
Thanh Theresa Dinh, Stanford University

11:15  Harnessing protective autoimmunity to vaccinate against cardiovascular diseases
Klaus Ley, La Jolla Institute for Allergy & Immunology

11:45  042 - GDF-15 inhibits integrin activation and mouse neutrophil recruitment through the ALK-5/TGFßRII heterodimer
Annette Artz, Max-Planck Institute Münster

TRANSCRIPTION AND EPIGENETICS II
10:30am – 12:00pm — Back Bay Ballroom C

Chairs: Yoshiaki Okada, Osaka University and Jason Fish, University Health Network, University of Toronto

10:30  Transcriptional control of vascular stability
Anna Randi, Imperial College London

11:00  043 - Smooth muscle cell plasticity is dependent on TET2-HDAC4 regulation of stemness genes
Renjing Liu, University of Sydney

11:15  KLFs and the cardiovascular system
Mukesh Jain, Case Western Reserve University
11:45  044 - Identification and characterization of endothelial cell type-specific transcriptional enhancers using lineage-specific p300 ChIP-seq
Pingzhu Zhou, Boston Children's Hospital

Lunch—Grand Ballroom
12:00 to 2:00pm

POSTER SESSION II AND EXHIBITS
12:00 – 2:00pm
Constitution Ballroom:

NEUROVASCULAR DISEASE - Boards 1 through 6
VASCULAR MALFORMATIONS - Boards 7 through 18
HHT - Boards 19 and 20
DISEASES - Boards 21 through 26
HEART - Boards 27 through 31
ORGAN SPECIFIC VASCULAR BEDS - Boards 32 through 39
BRAIN - Boards 40 through 43
TRANSCRIPTION AND EPIGENETICS - Boards 44 through 54
TISSUE ENGINEERING - Boards 55 through 67
IMMUNITY - Boards 68 through 82
STEM CELLS - Boards 83 through 93
HYPERTENSION/ENDOTHELIAL-DEPENDENT RESPONSES - Boards 94 through 97
ANIMAL MODELS OF VASCULAR DISEASE - Board 98

Ballroom Foyer:

ANIMAL MODELS OF VASCULAR DISEASE - Boards 99 through 107
VASCULAR BIOLOGY - Boards 108 through 124
ATHEROSCLEROSIS I - Boards 125 through 144
ENDOTHELIAL CELLS II - Boards 145 through 148

Liberty Ballroom:

ENDOTHELIAL CELLS II - Boards 149 through 162

Presenters will alternate times as follows:
Presenters at odd numbered boards will present from 12:00 pm to 1:00 pm;
Presenters at even numbered boards will present from 1:00 pm to 2:00 pm

Visit the Exhibits - see guide on pages xii & xiii
VASCULAR MALFORMATIONS
Co-sponsored by Cure HHT
2:00 – 3:30pm — Independence Ballroom

Chairs: Joyce Bischoff, Boston Children's Hospital, Harvard Medical School and Ondine Cleaver, UT Southwestern Medical Center

2:00 Deciphering the heterogeneity of vascular malformations by next generation sequencing
Miikka Vikkula, de Duve Institute, Université catholique de Louvain

2:30 045 - Endoglin controls blood vessel diameters via endothelial cell shape changes
Arndt Siekmann, Max-Planck Institute for Molecular Biomedicine

2:45 Cerebral cavernous malformations: From gene discovery to potential therapy
Douglas Marchuk, Duke University Medical Center

3:15 046 - Overexpression of VEGF-C in bone causes a phenotype that resembles Gorham-Stout disease
Michael Dellinger, UT Southwestern Medical Center

KIDNEY
Co-sponsored by American Society for Nephrology
2:00 – 3:30pm — Back Bay Ballroom D

Chairs: Samir Parikh and Ananth Karumanchi, Beth Israel Deaconess Medical Center, Harvard Medical School

2:00 New mechanism of renal vascular and glomerular remodeling
Janos Peti-Peterdi, University of Southern California

2:30 047 - Efficacious targeting of NFκB-p65 siRNA to different microvascular beds in diseased kidney
Jan Kamps, University Medical Center Groningen

2:45 High "Tek" solutions for vascular complications of diabetes
Susan Quaggin, Northwestern University

3:15 048 - Transcriptional network regulating re-vascularization of the kidney following injury
Lan Dang, Biogen

IMMUNITY II
2:00 – 3:30pm — Republic Ballroom

Chairs: Masayuki Yoshida, Tokyo Medical and Dental University and Francois Mach, University Hospital, Geneva Medical School

2:00 PM Neutrophil transmigration in vivo: Mode, mechanisms and novel concepts
Sussan Nourshargh, Barts and The London School of Medicine

2:30 049 - The role of IQGAP1 in LBRC trafficking and transendothelial migration: from in vitro identification to in vivo validation
William Muller, Feinberg School of Medicine, Northwestern University
2:45  Monocyte/macrophage recruitment to sites of inflammation
Paul Kubes, University of Calgary

3:15  050 - The Origin and Maintenance of Resident Arterial Macrophages
Angela Li, University of Toronto

Tissue Engineering
2:00 – 3:30pm — Back Bay Ballroom C

Chairs: Anjelica Gonzalez, Yale University and
Elena Aikawa, Brigham and Women's Hospital, Harvard Medical School

2:00  Vascularized and perfused micro-tissues in culture and their use in drug screening
Christopher Hughes, University of California, Irvine

2:30  051 - High-density lipoproteins reduce amyloid-beta-deposition in a novel in vitro model of the human brain vasculature
Jerome Robert, University of British Columbia

2:45  Engineering organ-specific microvasculature
Ying Zheng, University of Washington

3:15  052 - The role of myeloid cell-derived PDGF in tissue-engineered vascular graft neotissue formation
Ekene Onwuka, The Research Institute at Nationwide Children's Hospital

Tuesday, November 1 — 4:00pm-6:15pm (check each session time)

Stem Cells I
4:00 – 5:30pm — Republic Ballroom

Chairs: Guillermo Garcia-Cardena, Brigham and Women’s Hospital, Harvard Medical School and Karen Hirschi, Yale School of Medicine

4:00  Tissue-specific endothelial-derived angiocrine signals in organ regeneration
Shahin Rafii, Weill Cornell Medical College

4:30  053 - KLF4-dependent reprogramming of differentiated smooth muscle cells generates a subpopulation of resident vascular progenitor cells in the adventitia
Mary Weiser-Evans, Univ. of Colorado Denver Anschutz Medical Campus

4:45  Origin and patterning of coronary arteries
Kristy Red-Horse, Stanford University

5:15  054 - Bone Morphogenetic Protein 9 (BMP9) regulates lymphatic endothelial lineage specification during in vitro mouse embryonic stem cell differentiation
Sabine Bailly, INSERM
**Defective TGFbeta Family Signaling in Hereditary Hemorrhagic Telangiectasia (HHT)**

Sponsored by Cure HHT  
Supported by the Jeffrey A Blevins Fund  
4:00 – 5:00pm - Independence Ballroom  

Chair: **S. Paul Oh, University of Florida**  

4:00 **Overview**  
S. Paul Oh, University of Florida  

4:10 **Notch and HHT mutations share mechanisms in AVM formation**  
Rong Wang, University of California, San Francisco  

4:35 **HHT animal models and their use in mechanistic studies**  
Hua Su, University of California, San Francisco  

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**Vascular Regeneration Using HGF Gene Therapy**

Sponsored and Supported by AnGes MG, Inc.  
4:00 – 5:00pm — Back Bay Ballroom C  

Chair: **Lars Norgren, Uppsala University**  

4:00 **Basic research of HGF**  
Ryuichi Morishita, Osaka University  

4:30 **Clinical research of HGF**  
Richard Powell, Dartmouth-Hitchcock Medical Center  

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**Lymphatics: At the Crossroad of the Circulation and Immune System**

Sponsored by the Lymphatic Education and Research Network  
Supported in part by Texas A&M University College of Medicine, Department of Medical Physiology  
5:15 – 6:15pm — Independence Ballroom  

Chair: **David Zawieja, Texas A&M University**  

5:15 **Lymph nodal circulation and antigens filtration rate**  
Stanley Rockson, Stanford University  

5:45 **Lymphatic disease, edema, and inflammation: From bench to bedside**  
Laura Santambrogio, Albert Einstein College of Medicine  

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**Ang-Tie System for Vascular Stabilization**

Sponsored by the Korean Vascular Science and Medicine Organization  
5:15 – 6:15pm — Back Bay Ballroom C  

Chair: **Gou Young Koh, Korea Advanced Institute of Science and Technology**  

5:15 **Non-endothelial functions of Tie2**  
Hellmut Augustin, Heidelberg University and German Cancer Research Center  

5:35 **The reciprocal relationship of Tie2 and infections**  
Samir Parikh, Beth Israel Deaconess Medical Center and Harvard Medical School  

5:55 **Therapeutic roles of Tie2 activation in diverse vascular disease models**  
Gou Young Koh, Korea Advanced Institute of Science and Technology
**Wednesday, November 1 — Exhibitor Showcase**

**VISUALSONICS**
4:00 – 5:00pm — Back Bay Ballroom D

*Unlocking Translational Biomarkers in Vascular Biology with Ultra High Frequency Ultrasound*

Julius Decano, Brigham and Women’s Hospital, Harvard Medical School

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**Gala at the Isabella Stewart Gardner Museum**

**DINNER AT THE MUSEUM**
6:30 – 9:30pm — Isabella Stewart Gardner Museum
25 Evans Way

- 6:30 Beer and wine will be served
- 6:45 Hors d’oeuvres will be passed
- 7:30 Buffet dinner will be served
- 8:30 Desserts and coffee will be available

Two coach buses will take Gala attendees over to the museum from the Sheraton Boston Hotel. Passengers can begin boarding buses at 6:15pm. The buses will continue to loop until all attendees have arrived at the museum. Buses will be available for return to the Sheraton, beginning at 9:00pm.

If you choose to drive, the Isabella Stewart Gardner Museum is located at 25 Evans Way. Parking is available at the Museum of Fine Arts parking lot at 20 Museum Road off Huntington Avenue. Parking is $17 per car.

If you are walking to the museum, a map can be found in the meeting mobile app or check with the hotel concierge or the NAVBO staff.

There is complimentary coat check at the Museum entrance - coat check is just adjacent to the Living Room. Guests carrying personal bags larger than 10 in x 10 in may be asked to leave their bags at the coat check if entering the Historic Palace.

Museum docents are available to answer any questions. Please take advantage of their knowledge and expertise.

We are pleased to offer our attendees a special treat! Visit the exhibit, Beyond Words, which features illuminated manuscripts from 15th Century Italy (new wing, second floor).

No flash photography or additional lighting is allowed in the Historic Building. Flash photography is allowed on the first floor of the New Wing only.
**ATHEROSCLEROSIS III**  
Co-sponsored by Japanese Vascular Biology and Medicine Organization  
8:30 – 10:00am — Independence Ballroom

**Chairs:**  
*Yasufumi Sato*, Institute of Development, Aging and Cancer, Tohoku University and  
*Myron Cybulsky*, University Health Network, University of Toronto

8:30  
**Innate immune memory in atherosclerosis**  
Eicke Latz, University Hospital, University of Bonn

9:00  
**055 - IL1ß promotes atheroprotective changes in late stage atherosclerotic lesions**  
Delphine Gomez, University of Virginia

9:15  
**Role of innate immunity in chronic inflammation in arterial wall and adipose tissue**  
Masataka Sata, University of Tokushima Graduate School

9:45  
**056 - Identification of ALK1 as a novel mechanism of LDL uptake into and transcytosis through the endothelium**  
Jan Krachling, Yale School of Medicine

**EYE**  
8:30 – 10:00am — Back Bay Ballroom D

**Chairs:**  
*Patricia D’Amore*, Schepens Eye Research Institute/Harvard Med School and  
*Holger Gerhardt*, Max-Delbrueck-Center for Molecular Medicine

8:30  
**Light response pathways in vascular development**  
Richard Lang, Cincinnati Children's Hospital Medical Center

9:00  
**057 - Role of Vascular Stiffness in Retinal Endothelial Activation Associated with Diabetic Retinopathy**  
Kaustabh Ghosh, University of California, Riverside

9:15  
**Novel functions of VEGF-B in angiogenesis**  
Xuri Li, Sun Yet-Sen University

9:45  
**058 - Hippo signaling effector Yap regulates hyaloid vasculature regression in the developing eye**  
Masahide Sakabe, Cincinnati Children’s Hospital Medical Center

**PERMEABILITY**  
8:30 – 10:00am — Back Bay Ballroom C

**Chairs:**  
*Radu Stan*, Geisel School of Medicine at Dartmouth and  
*Peter Hordijk*, Free University Medical Center

8:30  
**Therapeutic targeting of VEGF-regulated vascular permeability**  
Lena Claesson-Welsh, Uppsala University

9:00  
**059 - Abl2/Arg facilitates endothelial barrier disruption via β1 integrin endocytosis and distribution in inflammatory edema**  
Jurjan Aman, VU University Medical Centre

9:15  
**Regulation of endothelial junction integrity**  
Samir Parikh, Beth Israel Deaconess Medical Center
9:45  060 - The diaphragms of fenestrated endothelia – gatekeepers of vascular permeability, blood homeostasis and survival in mice and humans
Radu Stan, Geisel School of Medicine at Dartmouth

**STEM CELLS II**
Co-sponsored by European Vascular Biology Organization
8:30 – 10:00am — Republic Ballroom

**Chairs:**  **Jozef Dulak**, Jagiellonian University and **Shahin Rafii**, Weill Cornell Medical College

8:30  Role of vascular endothelial cells in stem cell generation and maintenance
Karen Hirschi, Yale School of Medicine

9:00  061 - Rejuvenation of aged vascular niches to enhance hematopoietic stem cell function
Jason Butler, Weill Cornell Medical College

9:15  Cell fate decisions in hemogenic endothelium
Ann Zovein, University of California, San Francisco

9:45  062 - Endothelial side population cells contribute to tumor angiogenesis
Hisamichi Naito, Osaka University

**Coffee Break—Ballroom Foyer**

**CANCER**
Co-sponsored by Koran Vascular Science and Medicine Organization
10:30am – 12:00pm — Republic Ballroom

**Chairs:**  **Gabriele Bergers**, VIB - Vesalius Research Center, University of Leuven and **Diane Bielenberg**, Boston Children’s Hospital, Harvard Medical

10:30  Vascular abnormalization in glioblastoma
Anna Dimberg, Uppsala University

11:00  063 - Targeting metabolic symbiosis to overcome resistance to anti-angiogenic therapy
Laura Pisarsky, Fred Hutchinson Cancer Research Center

11:15  Molecular targeting of tumor vasculatures
Gou Young Koh, KAIST

11:45  064 - Cancer-associated kidney injury can be prevented by targeting of intravascular neutrophil extracellular traps
Anna-Karin Olsson, Uppsala University

**LUNG**
10:30am – 12:00pm — Back Bay Ballroom D

**Chairs:**  **Dolly Mehta**, University of Illinois at Chicago and **Kurt Stenmark**, University of Colorado Denver

10:30 AM  The Pulmonary Endothelial Glycocalyx: A determinant of lung injury onset and resolution
Eric Schmidt, University of Colorado School of Medicine
11:00  065 - Adenosine Deaminase Acting on RNA-1 is Indispensable for Vascular Development and Homeostasis in vivo  
Federica Francesca Lunella, Institute of Cardiovascular Regeneration

11:15  Lineage tracing analysis of lung microvessel repair  
Asrar Malik, University of Illinois Chicago College of Medicine

11:45  066 - Epigenetic repression of KLF2 secondary to loss of FAK expression impairs S1P1 transcription and vascular barrier formation  
Pascal Yazbeck, University of Illinois Chicago College of Medicine

**CALCIFICATION**
10:30am – 12:00pm — Independence Ballroom

**Chairs:** Linda Demer, University of California, Los Angeles School of Medicine and Catherine Shanahan, Kings College London

10:30  Cellular regulation of vascular calcification  
Cecilia Giachelli, University of Washington

11:00  067 - Rac2 Regulates IL-1ß-dependent Atherosclerotic Calcification  
Abigail Healy, Providence VA Medical Center

11:15  The role of microvesicles in cardiovascular calcification  
Elena Aikawa, Brigham and Women's Hospital, Harvard Medical School

11:45  068 - Epigenetic Regulation in Vascular Calcification  
Chin Yee Ho, Kings College London

**COMPLEXITY AND COMPUTATIONAL MODELING**
10:30am – 12:00pm — Back Bay Ballroom C

**Chairs:** Victoria Bautch, University of North Carolina at Chapel Hill and Masanori Aikawa, Brigham and Women’s Hospital, Harvard Medical School

10:30  Systems genetics of the KLF14 locus associated with obesity and diabetes  
Mete Civelek, University of Virginia

11:00  069 - Controllability in human islets regulatory network identifies the dysregulated pathways associated with Type 2 Diabetes  
Amitabh Sharma, Brigham and Women’s Hospital

11:15  Do capillary vessels blink?  
Erzsébet Ravasz Regan, The College of Wooster

11:45  070 - A Computer Simulation of Individualized Laser Therapy to Prevent Progression of Capillary Occlusions in a Virtual Diabetic Retina  
Xiao Fu, Indiana University Bloomington
Lunch—Grand Ballroom
12:00 to 2:00pm

POSTER SESSION III AND EXHIBITS
12:00 – 2:00pm

Constitution Ballroom:

CANCER - Boards 1 through 22
OBESITY/DIABETES - Boards 23 through 40
PERMEABILITY - Boards 41 and 57
CALCIFICATION - Boards 58 through 65
LIPID MEDIATORS - Boards 66 through 72
COMPLEXITY AND COMPUTATIONAL MODELING - Boards 73 through 79
VASCULAR REMODELING - Boards 80 through 98

Ballroom Foyer:

VASCULAR REMODELING - Boards 99 through 102
NEW TECHNOLOGIES - Boards 103 through 109
IMAGING - Boards 110 and 111
INFLAMMATION - Boards 112 through 119
EXTRACELLULAR MATRIX - Boards 120 through 124
ENDOTHELIAL CELLS III - Boards 125 through 142
ATHEROSCLEROSIS II - Boards 143 through 148

Liberty Ballroom:

ATHEROSCLEROSIS II - Boards 149 through 162

Presenters will alternate times as follows:
Presenters at odd numbered boards will present from 12:00 pm to 1:00 pm;
Presenters at even numbered boards will present from 1:00 pm to 2:00 pm

Visit the Exhibits - see guide on pages xii & xiii
OBESITY/DIABETES
2:00 – 3:30pm — Republic Ballroom

Chairs: Zoltan Arany, University of Pennsylvania and Cynthia Meininger, Texas A&M Health Science Center

2:00 Role of adipokines in obesity-linked vascular disease
Kenneth Walsh, Boston University School of Medicine

2:30 071 - Sex differences in the role of endothelial mineralocorticoid receptor in resistance vessel endothelial dysfunction in obese and atherosclerotic-prone mice
Ana Davel, Tufts Medical Center

2:45 RAGE & the Formin DIAPH1 & mechanisms of diabetic complications
Ann Marie Schmidt, NYU School of Medicine

3:15 072 - Suppression of epsin expression limits VEGFR3 degradation and rescues diabetes triggered impairment of lymphatic function
Hao Wu, Boston Children's Hospital

BRAIN
2:00 – 3:30pm — Back Bay Ballroom D

Chairs: John Greenwood, UCL Institute of Ophthalmology and Anne Joutel, Inserm U1161, Genetics and Pathogenesis of Cerebrovascular Diseases

2:00 Microvascular mural cell physiology and pathology investigations in the live mouse brain
Jaime Grutzendler, Yale School of Medicine

2:30 073 - Myeloid progenitors differentiate into pericytes through TGF-ß signaling in developing skin and brain vasculature
Tomoko Yamazaki, National Institutes of Health

2:45 Potassium sensing by capillary KIR channels initiates retrograde electrical signaling to regulate cerebral blood flow
Mark Nelson, University of Vermont

3:15 074 - FoxF2 is required for establishment and maintenance of cerebral vascular stability
Sarah J. Childs, University of Calgary

LIPID MEDIATORS
2:00 – 3:30pm — Independence Ballroom

Chairs: Dipak Panigrahy, Beth Israel Deaconess Medical Center and Hong Chen, Boston Children’s Hospital, Harvard Medical School

2:00 The identification of novel biologically active PUFA epoxides and diols in angiogenesis and vascular disease
Ingrid Fleming, Johann Wolfgang Goethe University

2:30 075 - Derlin-2-, Derlin-1 and caveolin-1-mediated cyclooxygenase-2 degradation through a glycoxylation dependent ER-associated degradation pathway
Song-Kun Shyue, Academia Sinica

2:45 Sphingosine 1-phosphate biology at the nexus of vascular and hematopoietic systems
Tim Hla, Boston Children’s Hospital
3:15  076 - Dynamic lipid droplets in endothelium: Role of Adipose Triglyceride Lipase in endothelial homeostasis
Andrew Kuo, Yale University

NEW TECHNOLOGIES
2:00 – 3:30pm — Back Bay Ballroom C

Chairs: Mary Dickinson, Baylor College of Medicine and J. Geoffrey Pickering, Western University

2:00  Vascular mechanobiology
Donald Ingber, Wyss Institute for Biologically Inspired Engineering at Harvard University

2:30  077 - Endothelial whole-genome CRISPR screening to identify regulators of shear stress mechanotransduction
Brian Coon, Yale School of Medicine

2:45  Assay development for in vivo drug discovery in the zebrafish
Calum MacRae, Brigham and Women's Hospital

3:15  078 - RhoGTPases and RNAi: a large scale screen using ECIS® to identify new regulators of the endothelial barrier
Joana Amado-Azevedo, VU University Medical Center Amsterdam

Wednesday, November 2 — 4:00-5:30pm

ANGIOGENESIS AND ARTERIOGENESIS II
Co-sponsored by Japanese Vascular Biology and Medicine Organization
4:00 – 5:30pm — Republic Ballroom

Chairs: Takashi Minami, Kumamoto University and Brant Weinstein, NICHD, NIH

4:00  The role of endocytic adaptor proteins, epsins in vascular biology
Hong Chen, Boston Children’s Hospital/Harvard Medical School

4:30  079 - The shear stress-induced human long non-coding RNA Lassie regulates endothelial cell function
Laura Stanicek, University Hospital Frankfurt

4:45  Apelin/APJ system for the vascular maturation
Nobuyuki Takakura, Osaka University

5:15  080 - Von Willebrand Factor modulates blood vessel formation and function via Angiopoietin 2
Koval Smith, Imperial College London

BLOOD VESSELS AND KIDNEY DISEASES
Sponsored by the American Society of Nephrology
4:00 – 5:00pm — Back Bay Ballroom C

Chair: Susan Quaggin, Northwestern University

4:00  Haemodynamic regulation of endothelial phenotype: nuances of the kidney vasculature
Phil Marsden, University of Toronto

4:30  Mechanisms of diabetic kidney and vascular complications
George King, Joslin Diabetes Center, Boston
Wednesday, November 2 — Exhibitor Showcase

**FLUIDIGM EXHIBITOR SHOWCASE**

4:00 – 5:00pm — Back Bay Ballroom D

*Cellular Heterogeneity in Cardiovascular Disease: Exploring Mechanisms through Single Cell Analysis*

Julius L. Decano, Brigham and Women’s Hospital, Harvard Medical School

- Human macrophage heterogeneity through single cell gene expression analysis using C1 and BioMark
- Macrophage heterogeneity remains even after polarization by interferon gamma stimulation
- CyTOF of human aortic valvular interstitial cells in calcific valvular disease show deep heterogeneity
- Putative aortic valve progenitor cell population identified by mass cytometry may promote aortic valve calcification

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**NAVBO Membership Meeting**

**NAVBO MEMBERSHIP BUSINESS MEETING**

5:30 – 6:00pm — Independence Ballroom

Chair: Jan Kitajewski, University of Illinois Chicago

**Agenda**

- Approval of the 2015 Minutes
- Acknowledgements and Recognitions
- Treasurer’s Report by Dr. Muller, Secretary-Treasurer
- Membership Report by Dr. Muller, Secretary-Treasurer
- Future Meetings
- New Initiatives
- Open Discussion
CLOSING PLENARY SESSION
8:00am – 12:30pm — Grand Ballroom

Chair: Joyce Bischoff, Boston Children’s Hospital, Harvard Medical School

8:00 Rethinking the Thrombotic Complications of Atherosclerosis
Peter Libby, Brigham and Women’s Hospital, Harvard Medical School

8:45 Benditt Award Lecture -
Transcriptional Regulation of Endothelial Cell Plasticity in Health and Disease
Elisabetta Dejana, Uppsala University and the University of Milan

9:30 Coffee Break

10:00 Folkman Award Lecture -
Reciprocal Regulation of the Vascular and Immune State in Distinct Tumor Niches
Gabriele Bergers, VIB - Vesalius Research Center, University of Leuven

10:45 Springer Award Lecture -
Mutagenesis of microRNA genes uncovers trait variance as a unique vascular phenotype that confers stress sensitization
Stefania Nicoli, Yale University School of Medicine

11:15 IVBM 2018 Presentation
Kari Alitalo, University of Helsinki

11:30 Mechanisms of Vessel Maturation: Closing the Loop
Jan Kitajewski, University of Illinois Chicago

12:15 Concluding Remarks

12:30 Program Concludes