Scientific Organizers:
Elisabetta Dejana, Uppsala University, Sweden
Anne C. Eichmann, Yale University School of Medicine, USA
Gavin O. Thurston, Regeneron Pharmaceuticals Inc., USA

Joint with the meeting on Uncomplicating Diabetes: Reducing the Burden of Diabetes-Related End-Organ Injury

Recent years have seen rapid progress in our knowledge of how the vascular system is formed during embryo development and in adults expressing in proliferative diseases such as cancer. It has become unequivocally evident that endothelial cells express highly specific and distinct functions in arteries, veins and lymphatics. Moreover, endothelial cells are able to further modify their functional properties in order to meet the specific needs of the different organs. This conference will address the mechanisms that orchestrate organ-specific endothelial differentiation, making a connection between endothelial dysfunction and organ pathology. The major challenge will be to link our experimental knowledge to the understanding of human vascular diseases. The symposium will bring together teams of vascular biologists, neuroscientists, immunologists and clinicians from all over the world to share their recent discoveries and to direct future efforts to find novel and more precise therapies.

Session Topics:
• Vascular Growth Factors: Biological Relevance and Therapeutic Application
• Vascular Growth Factors: Receptors and Biological Role
• Endothelial Metabolism and Neurovascular Crosstalk (Joint)
• Regulation of Endothelial Cell Differentiation in Development and Tissue Regeneration
• Molecular Basis of Vascular Diversity
• Brain Vascular Pathology
• Inflammation, the Vasculature and Diabetic Complications (Joint)
• Hemodynamics and Endothelial Pathology

Scholarship Application & Discounted Abstract Deadline: November 13, 2017
Abstract Deadline: November 28, 2017
Discounted Registration Deadline: December 20, 2017

Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Meeting Hashtag: #KSvascularbio
www.keystonesymposia.org/18J8
Vascular Biology and Human Diseases: From Molecular Pathways to Novel Therapeutics (J8)

Welcome and Keynote Address (J8)
*Elisabetta Dejana*, Uppsala University, Sweden
*Kari K. Alitalo*, University of Helsinki, Finland
Therapeutic Potential of Vascular Growth Factors

Welcome and Keynote Address (J7)
*Daniel J. Drucker*, Lunenfeld-Tanenbaum Research Institute, Canada
*Steven E. Kahn*, University of Washington, USA
Current Management of Type 2 Diabetes

Vascular Growth Factors: Biological Relevance and Therapeutic Application (J8)
*Anne C. Eichmann*, Yale University School of Medicine, USA
*Michael Simons*, Yale University, USA
Cell Type Specificity of FGF/TGF Signaling
*Lena Claesson-Welsh*, Uppsala University, Sweden
Vascular Leakage in Cancer and Retinopathy
*Shahin Rafii*, Weill Cornell Medical College, USA
Ultradian Vascular Niche Signals in Organotypic Stem Cell Regeneration
*Anna I. Dimberg*, Uppsala University Hospital, Sweden
Short Talk: CD93 in Regulation of Tumor Angiogenesis
*Roxana Ola*, Yale University, USA
Short Talk: Smad4 Acts Downstream of BMP9/10-ALK1 in Mediating AVM Formation through Transcriptional Modulation of CK2/PTEN/Pi3K Signaling Cascade

New Treatments in Diabetes (J7)
*Mark I. McCarthy*, University of Oxford, UK
*Daniel J. Drucker*, Lunenfeld-Tanenbaum Research Institute, Canada
GLP-1-Mediated Reduction in Complications of Diabetes
*Volker Vallon*, University of California, San Diego, USA
SGLT2 Inhibition – Insights from Experimental Studies
*David Cherney*, University of Toronto, Canada
SGLT2 Inhibition: Renal Effects in Man
*Simeon Taylor*, University of Maryland School of Medicine, USA
Short Talk: Canagliflozin Triggers the FGF23/1,25-dihydroxyvitamin/PTH Axis: A Potential Mechanism Mediating Adverse Effects on Bone Health
*Anita C. Aperia*, Karolinska Institute, Sweden
Short Talk: Vulnerability of SGLT-Expressing Cells to Hyperglycaemia

Vascular Growth Factors: Receptors and Biological Role (J8)
*Lena Claesson-Welsh*, Uppsala University, Sweden
Gou Young Koh, Institute of Basic Science, South Korea
Tie2-Activating Antibody “ABTAA” for Micro-vascular Diseases
Gavin O. Thurston, Regeneron Pharmaceuticals Inc., USA
Tumor Endothelial Cell Heterogeneity and Responses to Anti-Vascular Therapy
*Luisa Iruela-Arispe*, University of California, Los Angeles, USA
Critical Signaling Nodes in Vascular Homeostasis
*Hong Chen*, Harvard Medical School, USA
Short Talk: Epsin’s Role in Diabetic Lymphangiogenesis

Lipids and Diabetic Complications (J7)
*Moshe Levi*, Georgetown University, USA
*Josephine Forbes*, University of Queensland, Australia
Katalin Susztak, University of Pennsylvania, USA
How to Turn GWAS Signals into Drugs for Kidney Disease?
*Weier Qi*, Joslin Diabetes Center, Harvard Medical School, Boston, USA
Human Proteomics to Therapeutics for Diabetic Nephropathy - The 50-Year Joslin Medalist Study
*Eoin P. Brennan*, Conway Institute, Ireland
Short Talk: Targeting Inflammation in Diabetic Kidney Disease Using Pro-Resolving Lipid Mediators

Poster Session 1

Endothelial Metabolism and Neurovascular Cross-Talk (Joint)
*George L. King*, Joslin Diabetes Center, USA
*Luisa Iruela-Arispe*, University of California, Los Angeles, USA
*Peter F. Carmeliet*, University of Leuven, VIB, Belgium
Endothelial Cell Metabolism and Therapeutic Interventions
*Susan Quaggin*, Northwestern University, USA
VE-PTP Phosphatase Inhibition Protects the Kidney in Diabetes
*Anne C. Eichmann*, Yale University School of Medicine, USA
Neurovascular Cross-Talk and Possible Pathological Implications
*David L. Silver*, Duke-NUS Medical School, Singapore
Brain Lipid Transport
*Kevin G. Peters*, Aerpio Pharmaceuticals, USA
Short Talk: Targeting VE-PTP for Tie2 Activation and Vascular Stabilization in Diabetic Eye Disease
*Jacqueline A. Taylor*, German Cancer Research Center, Germany
Short Talk: Endothelial Notch1 Is a Potent Regulator of Adipose Tissue Metabolism and Function

* Session Chair † Invited but not yet accepted  Program current as of September 10, 2019 Program subject to change. Meal formats are based on meeting venue.
For the most up-to-date details, visit www.keystonesymposia.org/18J8 and www.keystonesymposia.org/18J7.

www.keystonesymposia.org/18J8
Regulation of Endothelial Cell Differentiation in Development and Tissue Regeneration (J8)
*Ralf H. Adams*, Max Planck Institute for Molecular Biomedicine, Germany
Didier Stainier, Max Planck Institute for Heart and Lung Research, Germany
*Vascular Development in Zebrafish*

Taia Mäkinen, Uppsala University, Sweden
*Mechanisms of Lymphatic Vessel Formation from Progenitors of Different Origins*

Hellmut G. Augustin, DKFZ & Heidelberg University, Germany
*Epigenetic Regulation of Vascular Maturation*

Katsuhiko Kato, Max Planck Institute for Molecular Biomedicine, Germany
*Short Talk: Pulmonary Pericytes Regulate Lung Morphogenesis*

Mitochondria and Diabetic Complications (J7)
*Kumar Sharma*, USA
*Asaad Antoine Eid*, American University of Beirut, Lebanon
Richard J. Youle, NINDS, National Institutes of Health, USA
*General Overview on Mito Maven*

Chengxue Helena Qin, Baker IDI Heart and Diabetes Institute, Australia
*Role of Endogenous Annexin-A1 in the Cardiovascular Response to Diabetes*

Farhad Danesh, University of Texas MD Anderson Cancer Center, USA
*Mitochondrial Reprogramming in Diabetic Nephropathy*

Svati H. Shah, Duke University, USA
*What Can We Learn from Metabolomics?*

Poster Session 2

WEDNESDAY, FEBRUARY 28

Molecular Basis of Vascular Diversity (J8)
*Hellmut G. Augustin*, DKFZ & Heidelberg University, Germany
Ralf H. Adams, Max Planck Institute for Molecular Biomedicine, Germany
*Organ-Specific and Functional Specialization of Blood Vessels*

Constantino Iadecola, Weill Cornell Medicine, USA
*The Diversity of the Brain Microcirculation in Health and Disease*

Britta Engelhardt, Theodor Kocher Institute/Universitat Bern, Switzerland
*Specialized Brain Barriers Establish the Immune Privilege of the CNS*

Stefan Liebner, Klinikum der Johann Wolfgang Goethe-Universität, Germany
*Role of Astrocyte-derived Wnt Growth Factors for Endothelial Blood-brain Barrier Maintenance*

Marco Castro, Uppsala University, Sweden
*Short Talk: Endothelial Loss of CDC42 Elicits Cerebral Vascular Malformations and Increases MEKK3-Dependent KLF2/4 Expression*

Joseph M. Rutkowski, Texas A&M College of Medicine, USA
*Short Talk: Enhancing Renal Lymphatic Expansion Prevents Hypertension in Mice*

Genomics and Epigenomics in Diabetic Complications (J7)
*Katalin Susztak*, University of Pennsylvania, USA
*Matthias G. von Herrath*, Novo Nordisk and La Jolla Institute for Allergy and Immunology, USA
Eske Willerslev, University of Copenhagen, Denmark
*DNA Research on Indigenous Populations*

Mark I. McCarthy, University of Oxford, UK
*Using Human Genetics for Biological Insight and Translational Advantage*

Ariela Benigni, Istituto di Ricerche Farmacologiche Mario Negri, Italy
*Regeneration of Kidney Vasculature by Angiotensin II Antagonism: New Insights*

Assam El-Osta, Monash University, Australia
*Epigenetics of Diabetes and its Complications: Beyond Epiphenomenon?*

Workshop: Blood-Brain Barrier Development and Maintenance in Health and Disease (J8)
*Peetra Ulrica Magnusson*, Uppsala University, Sweden
*Dritan Agalliu*, Columbia University Medical Center, USA
Ruchi Bajpai, University of Southern California, USA
*Cranial Pericytes Derived from Neural Crest Cells Reveal a Pericyte-Specific Functional Defect in Alzheimer’s Disease*

Ayal Ben-Zvi, Hebrew University of Jerusalem, Israel
*Brain Barrier Pathology in Neuropsychiatric Lupus (NPSLE)*

Lei Liu Conze, Uppsala University, Sweden
*Dynamic Molecular Signatures of Cerebral Blood Vessel during Blood Brain Barrier Development*

Selasi Dankwa, Center for Infectious Disease Research, USA
*Identifying Host Kinases and Inhibitors that Regulate Barrier Properties in Human Brain Endothelial Cells*

Louise Delsing, University of Skövde, Sweden
*A Human iPSC-Derived Model to Investigate Blood-Brain Barrier Specification of Endothelial Cells*

Evelyn M. Hoover, University of California, Irvine, USA
*The Vascular Immune Response to Infection Differences in the Brain and the Periphery*

Andrei V. Karginov, University of Illinois at Chicago, USA
*Barrier-Enhancing Function of Src Kinase in Endothelial Cells*
Joppe Oldenburg, Uppsala University, Sweden
Identifying Novel Small Molecule Drugs for Cerebral Cavernous Malformation Treatment

Oxidative Stress and Diabetic Complications (J8)
*Costantino Iadecola, Weill Cornell Medicine, USA
Christer Betsholtz, Uppsala University, Sweden
A Molecular Atlas of the Blood-Brain Barrier as Revealed by Single Cell RNA Sequencing and Quantitative Proteomics
Elisabetta Dejana, Uppsala University, Sweden
Transcriptional Regulation of the Blood-Brain Barrier in Health and Disease
Dritan Agalliu, Columbia University Medical Center, USA
Cell Biological Mechanisms of Blood-Brain Barrier Breakdown in Neurological Disease
Monica Manglani, NINDS, National Institutes of Health, USA
Short Talk: Peptide-Specific Engagement of Cerebrovascular Endothelial Cells Promotes Dysfunctional Calcium Signaling during Experimental Cerebral Malaria

Mitochondria and Diabetic Complications (J7)
*Farhad Danesh, University of Texas MD Anderson Cancer Center, USA
*Charles E. Alpers, University of Washington, USA
Patrick J. Pagano, University of Pittsburgh, USA
ROS in Vascular Phenotypic Switching and Disease, Target Nox!
Karín Agnes Maria Jandeleit-Dahm, Monash University, Australia
The Role of Reactive Oxygen Species in Diabetic Complications
Kumar Sharma, USA
Mitochondrial ROS: Friend or Foe?
Jay C. Jha, Monash University, Australia
Short Talk: NADPH-Oxidase NOX5 Aggravates Renal Injury in Human Diabetic Nephropathy

Poster Session 3

THURSDAY, MARCH 1

Inflammation, the Vasculature and Diabetic Complications (Joint)
*Anil Karihaloo, Novo Nordisk A/S, USA
*Michael Simons, Yale University, USA
Andrew J. Murphy, Baker Heart Research Institute, Australia
Hematopoietic Progenitor Cells in Diabetic Complications
Mark E. Cooper, Monash University, Australia
An Unrecognized Role for the Adaptive Immune System in Vision-Threatening Neovascular Retinopathies
Martin Schwartz, Yale School of Medicine, USA
Endothelial Fluid Shear Stress Responses in Vascular Remodeling and Atherosclerosis

Thomas J. Schall, ChemoCentryx, Inc., USA
Targeting CCR2 for the Treatment of Renal Diseases
Kyung Lee, Icahn School of Medicine at Mount Sinai, USA
Short Talk: Leucine Rich alpha-2-Glycoprotein 1 (LRG1) Is Increased in Diabetic Kidneys and Is a Driver of Angiogenesis and Progression of Diabetic Glomerulopathy
Jill Badin, Indiana University School of Medicine, USA
Short Talk: Diabetes Exacerbates Coronary Atherosclerosis and Calcification in Ossabaw miniature Swine with Metabolic Syndrome
Ingrid Fleming, Goethe University Frankfurt, Germany
Short Talk: Inhibition of Soluble Epoxide Hydrolase Prevents Diabetic Retinopathy
Reiner Alois Wimmer, Institute of Molecular Biotechnology Austria, Austria
Short Talk: Human Blood Vessel Organoids: A New Model for Diabetic Vasculopathy

Vasoactive Hormones in Diabetic Complications/Hemodynamics and Endothelial Pathology (Joint)
*Christer Betsholtz, Uppsala University, Sweden
*Susan Quaggin, Northwestern University, USA
Rama Natarajan, Beckman Research Institute of City of Hope, USA
Linking LncRNAs with Diabetic Complications and Angiotensin II Actions
Susan Gurley, Oregon Health and Science University, USA
Angiotensin II: Tissue-Selective Effects
Merlin Christopher Thomas, Monash University, Australia
Novel Interactions with the Receptor for Advanced Glycation End-products in Mediating Pro-inflammatory Signalling
Tatiana V. Petrova, CHUV, University of Lausanne, Switzerland
Endothelial Cell Responses to Biomechanical Forces in Lymphatics

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Joint)

FRIDAY, MARCH 2

Departure