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
SUNDAY, FEBRUARY 25
Arrival and Registration

MONDAY, FEBRUARY 26
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

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/P38K 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

TUESDAY, FEBRUARY 27
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 October 20, 2018. 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.
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
Taija 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*, University of Texas Health San Antonio, USA
*Assaad 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, 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
Costantino 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 Agalli*, 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 Pathologies 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 iPS- 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 Differs 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
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*, 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!

Karin Agnes Maria Jandeleit-Dahm, Monash University, Australia
The Role of Reactive Oxygen Species in Diabetic Complications

Kumar Sharma, University of Texas Health San Antonio, 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 (Kim) 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