



# Vascular Biology and Human Diseases: From Molecular Pathways to Novel Therapeutics

February 25–March 1, 2018 | Eldorado Hotel & Spa | Santa Fe, New Mexico | USA

## 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](http://www.keystonesymposia.org/18J8)

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# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Vascular Biology and Human Diseases: From Molecular Pathways to Novel Therapeutics (J8)

Scientific Organizers: Elisabetta Dejana, Anne C. Eichmann and Gavin O. Thurston

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## Uncomplicating Diabetes: Reducing the Burden of Diabetes-Related End-Organ Injury (J7)

Scientific Organizers: Mark E. Cooper, Thomas M. Coffman, Matthias G. von Herrath and Susan Quaggin

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### SUNDAY, FEBRUARY 25

#### Arrival and Registration

### MONDAY, FEBRUARY 26

#### Welcome and Keynote Address (J8)

**Kari K. Alitalo**, University of Helsinki, Finland  
*Therapeutic Potential of Vascular Growth Factors*

#### Welcome and Keynote Address (J7)

**Steven E. Kahn**, VA Puget Sound Health Care System and  
University of Washington, USA  
*Current Management of Type 2 Diabetes*

#### Vascular Growth Factors: Biological Relevance and Therapeutic Application (J8)

**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  
*Angiocrine Functions of Endothelial Cells*

#### Short Talk(s) Chosen from Abstracts

#### New Treatments in Diabetes (J7)

**Daniel J. Drucker**, Lunenfeld-Tanenbaum Research Institute, Canada  
*GLP-1-Mediated Reduction in Complications of Diabetes*

**Volker Vallon**, UC San Diego & VA San Diego Healthcare System,  
USA

*SGLT2 Inhibition – Insights from Experimental Studies*

**David Cherney**, University of Toronto, Canada  
*SGLT2 Inhibition: Renal Effects in Man*

#### Short Talk(s) Chosen from Abstracts

#### Vascular Growth Factors: Receptors and Biological Role (J8)

**Gou Young Koh**, Institute of Basic Science, South Korea  
*Tie2 Activating Antibody "ABTAA" for Micro-vascular Diseases*

**Gavin O. Thurston**, Regeneron Pharmaceuticals Inc., USA  
*Endothelial Heterogeneity and Response to Anti-Vascular Therapy*

**Luisa Iruela-Arispe**, University of California, Los Angeles, USA  
*Critical Signaling Nodes in Vascular Homeostasis*

#### Short Talk Chosen from Abstracts

#### Lipids and Diabetic Complications (J7)

**Katalin Susztak**, University of Pennsylvania, USA  
*Lipids and Renal Tubular Injury in Diabetes*

**Weier Qi**, AstraZeneca, Sweden

*Human Proteomics to Therapeutics for Diabetic Nephropathy - The 50-Year Joslin Medalist Study*

#### Short Talk Chosen from Abstracts

#### Poster Session 1

### TUESDAY, FEBRUARY 27

#### Endothelial Metabolism and Neurovascular Crosstalk (Joint)

**Peter F. Carmeliet**, University of Leuven, VIB, Belgium  
*Endothelial Cell Metabolism and Therapeutic Interventions*

**Susan Quaggin**, Northwestern University, USA  
*Therapies on the Horizon of Diabetic Kidney Disease*

**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*

#### Short Talk(s) Chosen from Abstracts

#### Regulation of Endothelial Cell Differentiation in Development and Tissue Regeneration (J8)

**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 Vascular Maturation*

#### Short Talk Chosen from Abstracts

#### Mitochondria and Diabetic Complications (J7)

**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 Medical Center, USA  
*What Can We Learn from Metabolomics?*

#### Poster Session 2

### WEDNESDAY, FEBRUARY 28

#### Molecular Basis of Vascular Diversity (J8)

**Ralf H. Adams**, Max Planck Institute for Molecular Biomedicine,  
Germany

*Organ-Specific and Functional Specialization of Blood Vessels*

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**Costantino Iadecola**, Weill Cornell Medicine, USA

*The Diversity of the Brain Microcirculation in Health and Disease*

**Britta Engelhardt**, Theodor Kocher Institute/Universität 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*

**Short Talk(s) Chosen from Abstracts**

### Genomics and Epigenomics in Diabetic Complications (J7)

**Eske Willerslev**, University of Copenhagen, Denmark

*What We Can Learn from State of the Art Genomics?*

**Mark I. McCarthy**, University of Oxford, UK

*Using Human Genetics for Biological Insight and Translational Advantage*

**Enrico Petretto**<sup>†</sup>, Duke-NUS Medical School, Singapore

*Diabetic Sib-pair Cohort Discordant for the Development of Kidney Disease*

**Assam El-Osta**, Baker IDI Heart Research Institute, Australia

*Epigenetics of Diabetes and its Complications. Beyond Epiphenomenon?*

**Short Talk(s) Chosen from Abstracts**

### Brain Vascular Pathology (J8)

**Christer Betsholtz**, Uppsala University, Sweden

*The Establishment and Dysfunction of the Blood Brain Barrier*

**Elisabetta Dejana**, Uppsala University, Sweden

*Transcriptional Regulation of the Blood Brain Barrier in Health and Disease*

**Speaker to be Announced**

**Short Talk Chosen from Abstracts**

### Oxidative Stress and Diabetic Complications (J7)

**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 California, San Diego, USA

*Mitochondrial ROS: Friend or Foe?*

**Short Talk Chosen from Abstracts**

### Poster Session 3

### THURSDAY, MARCH 1

#### Inflammation, the Vasculature and Diabetic Complications (Joint)

### Speaker to be Announced

**Andrew J. Murphy**, Baker Heart Research Institute, Australia  
*Hematopoietic Progenitor Cells in Diabetic Complications*

**Lois E. H. Smith**, Boston Children's Hospital/ Harvard Medical School, USA

*FGF21 protects against early diabetic retinopathy*

**Israel F. Charo**, ChemoCentryx, Inc., USA

*Targeting CCR2 for Treatment of Renal Diseases*

**Short Talk(s) Chosen from Abstracts**

### Hemodynamics and Endothelial Pathology (J8)

**Martin Schwartz**, Yale School of Medicine, USA

*Endothelial Fluid Shear Stress Responses in Vascular Remodeling and Atherosclerosis*

**Naoki Mochizuki**, National Cerebral and Cardiovascular Center Research Institute, Japan

*The Responses of Endothelial Cells to the Flow*

**Tatiana V. Petrova**, CHUV and University of Lausanne, Switzerland

*Endothelial Cell Responses to Biomechanical Forces in Lymphatics*

### Vasoactive Hormones in Diabetic Complications (J7)

**Ariela Benigni**, IRCCS - Istituto di Ricerche Farmacologiche Mario Negri, Italy

*Regeneration of Kidney Vasculature by Angiotensin II Antagonism: New Insights*

**Susan Gurley**, Duke 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*

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J8)

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J7)

### FRIDAY, MARCH 2

### Departure