Angiogenesis and Vascular Disease

May 8–12, 2017 | Eldorado Hotel & Spa | Santa Fe, New Mexico | USA

Scientific Organizers:
M. Luisa Iruela-Arispe, University of California, Los Angeles, USA
Timothy T. Hla, Weill Medical College of Cornell University, USA
Courtney Griffin, Oklahoma Medical Research Foundation, USA

Joint with the meeting on Mitochondria, Metabolism and Heart

Angiogenesis is critical to both the growth and repair of tissues as well as for the progression of several pathologies. Progress in our molecular understanding of vascular growth has facilitated the development of therapies that have been successfully applied in diseases such as retinopathy and cancer. Notwithstanding these advancements, much remains to be harnessed from the basic molecular mechanisms that control vascular growth. This conference will bring together leaders of research from basic science, translational science, biotechnology and pharmaceutical areas, to discuss progress in clinical and translational research areas. The goal of the conference is to highlight new discoveries, technological advances and therapeutic possibilities. Both established and up-and-coming investigators will have ample opportunities to interact informally and share views with junior investigators and trainees in a collegial and relaxed atmosphere. By promoting cross-disciplinary interactions, the meeting will enhance vascular biology research and applications to clinical medicine.

Session Topics:
• Metabolism and Disease (Joint)
• Metabolite Signaling in Angiogenesis and Vascular Disease
• Transcriptional Control of Endothelial Fate
• Epigenetic Regulation of Vascular Growth
• Hypoxia Sensing Mechanism and Mitophagy (Joint)
• Vascular Stability and Cell-Cell Interactions
• Organ Specific Vasculature
• Lymphangiogenesis

Scholarship Application & Discounted Abstract Deadline: January 11, 2017
Abstract Deadline: February 8, 2017
Discounted Registration Deadline: March 8, 2017
**MONDAY, MAY 8**

Arrival and Registration

**TUESDAY, MAY 9**

**Welcome and Keynote Session (Joint)**
- *Luisa Iruela-Arispe*, University of California, Los Angeles, USA
- *Junichi Sadoshima*, Rutgers New Jersey Medical School, USA
- *Kari K. Alitalo*, University of Helsinki, Finland
- *Therapeutic Potential of Vascular Growth Factors*
- *David C. Chan*, California Institute of Technology, USA

**Metabolism and Disease (Joint)**
- *Robert E. Gerszten*, Beth Israel Deaconess Medical Center, USA
  *Metabolic Profiles and the Risk of Cardiometabolic Diseases*
- *Andrew G. Dillin*, University of California, Berkeley, USA
  *Mitochondria Mitokines and Aging*
- *Peter F. Carmeliet*, University of Leuven, VIB, Belgium
  *Angiogenesis Revisited: Role and (Therapeutic) Implications of Endothelial Metabolism*
- *Arpita Chowdhury*, Universität für Medizinische Faktoren, Germany
  *Short Talk: Oxidative Stress and Altered Mitochondrial Signaling in Barth Syndrome Models*
- *Nicholas Sibinga*, Albert Einstein College of Medicine, USA
  *Short Talk: Control of Mitochondrial Function by Atypical Cadherins*

**Workshop 1: Current Strategies for Funding Angiogenesis and Vascular Disease Research (Z3)**
- *Luisa Iruela-Arispe*, University of California, Los Angeles, USA
- *Yunling Gao*, NHLBI, National Institutes of Health, USA
- *Morris J. Birnbaum*, Pfizer Inc., USA
- *Philip Tagari*, Amgen Inc., USA
- *Courtney Griffin*, Oklahoma Medical Research Foundation, USA
- *Christer Betsholtz*, Uppsala University, Sweden

**Workshop 1: How to Evaluate Metabolism in the Heart: From the Langendorff Perfusion to Metabolome Analyses (Z4)**
- *Toren Finkel*, University of Pittsburgh/UPMC, USA
- *Larissa Pfisterer*, Frankfurt University, Germany

**Metabollite Signaling in Angiogenesis and Vascular Disease (Z3)**
- *William C. Sessa*, Yale University School of Medicine, USA
- *Morris J. Birnbaum*, Pfizer Inc., USA
- *Control of Hepatic Lipid Metabolism*
- *Christer Betsholtz*, Uppsala University, Sweden
- *Pericytes as Regulators of Vascular Stability*
- *J. David Symons*, University of Utah, USA
- *Short Talk: Cardiomyocyte Autophagy Maintains Shear-Stress-Induced Nitric Oxide Generation via Glycosylation-Dependent Purinergic Signaling to eNOS*
- *Andreas M. Beyer*, Medical College of Wisconsin, USA
  *Short Talk: Autophagy is a Novel Regulatory Mechanism in the Human Microcirculation*

**Mitochondria Quality Control (Z4)**
- *Gerald W. Dorn*, II, Washington University School of Medicine, USA
- *The Cardiomyopathy of Defective Mitochondrial Fusion*
- *Junichi Sadoshima*, Rutgers New Jersey Medical School, USA
- *Mitophagy in the Heart*
- *R. Luke Wiseman*, The Scripps Research Institute, USA
- *Stress-Responsive Regulation of Mitochondria Inner Membrane Proteostasis*
- *Ana Victoria Lechuga Vieco*, Spanish National Center for Cardiovascular Research, Spain
  *Short Talk: Conflict between Mitochondrial DNA Variants*

**Poster Session 1**

**WEDNESDAY, MAY 10**
Transcriptional Control of Endothelial Fate (Z3)

“Courtney Griffin, Oklahoma Medical Research Foundation, USA
William T. Pu, Children’s Hospital, Harvard Medical School, USA
Transcriptional and Epigenetic Regulation of Endothelial Gene Expression
Michael Potente, Max Planck Institute for Heart and Lung Research, Germany
EMBO Young Investigator Lecture: Metabolism, Metabolites and Endothelial Plasticity
Brian L. Black, University of California, San Francisco, USA
Identification of Injury- and Regeneration-Responsive Cardiac Endothelium Enhancer Elements
William C. Sessa, Yale University School of Medicine, USA
New Insights into Endothelial Lipid Metabolism
Manu Beerens, Brigham and Women’s Hospital, Harvard Medical School, USA
Short Talk: Prdm16 Modifies the Canonical Notch Output to Establish Proper Arterial Development
Akiko Mammoto, Medical College of Wisconsin, USA
Short Talk: YAP1 in Angiogenesis and Lung Regeneration

Autophagy and Metabolism (Z4)

Heidi M. McBride, McGill University, Canada
Emerging Functions of Mitochondrial-Derived Vesicles in Health and Disease.
*Ana Maria Cuervo, Albert Einstein College of Medicine, USA
Control of Metabolism by Chaperone-Mediated Autophagy
Daniel P. Kelly, University of Pennsylvania, USA
Mitochondrial Remodeling in the Developing and Diseased Heart
E. Dale Abel, University of Iowa, Carver College of Medicine, USA
Myocardial Autophagy and Metabolic Regulation
Helena C. Kenny, University of Iowa, USA
Short Talk: Inducible Deletion of OPA1 Causes Heart Failure in Part by mTOR - Mediated Suppression of Autophagy
Iain Scott, University of Pittsburgh, USA
Short Talk: Acetylation of Mitochondrial Proteins by Gcn5/1 Promotes Enhanced Fatty Acid Oxidation in the Heart

Epigenetic Regulation of Vascular Growth (Z3)

“Brian L. Black, University of California, San Francisco, USA
Stefanie Dimmelner, University of Frankfurt, Germany
Function of Long Noncoding RNAs in the Regulation of the Vasculature

Philip Tagari, Amgen, Inc., USA
Pharmacological and Genetic Inhibition of Hypoxia-Inducible Factor Prolyl Hydroxylases
Courtney Griffin, Oklahoma Medical Research Foundation, USA
Chromatin Remodeling and Vascular Development
Federico Bussolino, University of Torino, Italy
Short Talk: Transcription Factor EB Regulates VEGFR2 Function

Cell Signaling and Metabolism (Z4)

Pinchas Cohen, University of Southern California, USA
Mitochondrial-Derived Peptides and their Role in Vascular Disease
Xiang-Dong Fu, University of California, San Diego, USA
A Novel Strategy to Inhibit Angiogenesis in Cancer
Arieh Moussaieff, Hebrew University of Jerusalem, Israel
The Metabolic Switch of Cells Exiting Pluripotency
*Lorrie A. Kirshenbaum, University of Manitoba, Canada
Short Talk: Alternative Spliced Form of Bnip3 Preferentially Interacts with Mitofusin2 and Endoplasmic Reticulum for Cell Survival

Poster Session 2

THURSDAY, MAY 11

Hypoxia Sensing Mechanism and Mitophagy (Joint)

*Stefanie Dimmelner, University of Frankfurt, Germany
Åsa B. Gustafsson, University of California, San Diego, USA
Parkin-Dependent Degradation of Mitochondria by a Rab5 Endosomal Pathway
*Kenneth Walsh, University of Virginia School of Medicine, USA
Clonal Hematopoiesis and Cardio-metabolic Disease: New Mechanisms, New Therapeutic Opportunities
Marlene Rabinovitch, Stanford University, USA
A BMP-Notch Axis Coordinates Mitochondrial Function, Chromatin Remodeling and Gene Regulation to Regenerate Endothelium in Response to Injury
M. Celeste Simon, University of Pennsylvania, USA
Balancing Cell Growth with Homeostasis in the Tumor Microenvironment
Ivan Menendez-Montes, Fundacion CNIC, Spain
Short Talk: Cardiac HIF/VHL Signaling Regulates Glycolytic and Oxidative Metabolic Programs and Is Essential for Myocardial Maturation during Heart Development
Erin Reineke, Houston Methodist Research Institute, USA
Short Talk: Coordination of Cellular Function by Steroid-Receptor Coactivator 2 in Stress-Induced Cardiac Angiogenesis
Workshop 2: Intracellular Signaling and Vascular Function (Z3)

*George E. Davis*, University of Missouri School of Medicine, USA

Christopher D. Kontos, Duke University Medical Center, USA

Caskin2: A Novel Regulator of Endothelial Cell Quiescence

Qing Robert Miao, Medical College of Wisconsin, USA

Ras Signaling Is Required for Preventing Cerebrovascular Malformation

Sarah J. Parker, Cedars Sinai Medical Center, USA

Proteomics Reveals Context-Dependent Shifts in Mitochondrial Protein Expression and Novel Non-Canonical TGFβ Signaling Activation in the Aorta of Marfan Syndrome Mice

Vivek Venkataramani, University Medical Center Göttingen, Germany

CD31 Expression Determines Redox Status and Chemoresistance in Human Angiosarcomas

Ruowen Ge, National University of Singapore, Singapore

Extracellular Antiangiogenic Proteins Target Mitochondria through a Novel Route of Protein Trafficking via Endocytosis and Direct Endosome-Mitochondrion Fusion

Vascular Stability and Cell-Cell Interactions (Z3)

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

Harry (Hal) C. Dietz, Johns Hopkins University School of Medicine, USA

Blade Therapeutics, USA

TGFbeta in Inherited Vasculopathies: A Matter of Aneurysmic Proportions

George E. Davis, University of Missouri School of Medicine, USA

Molecular Determinants Governing EC-Pericyte Tube Co-Assembly and Stability

Luisa Iruela-Arispe, University of California, Los Angeles, USA

Vascular Stability and Cell-Cell Interactions during Endothelial Regeneration

Arie Horowitz, Thomas Jefferson University, USA

Short Talk: Dynamic Equilibrium of Endothelial Cell Junctions Is Required for Vascular Morphogenesis

Metabolic Regulation of Cell Signaling (Z4)

*Guido Kroemer*, Cordeliers Research Center, France

Metabolic Regulation of Autophagy

Michael N. Sack, NHLBI, National Institutes of Health, USA

Nutrient Sensing, Mitochondria and the Inflamasome

Stephen Y. Chan, University of Pittsburgh School of Medicine, USA

The Emerging Nexus between Matrix Stiffness and Cellular Metabolism in the Diseased Pulmonary Vasculature: New Targets for Treating Pulmonary Hypertension

Jianhua Xiong, NHLBI, National Institutes of Health, USA

Short Talk: Fatty Acid Oxidation Regulates Endothelial Cell Fate

Poster Session 3

FRIDAY, MAY 12

Organ Specific Vasculature (Z3)

*Kathleen M. Caron*, University of North Carolina at Chapel Hill, USA

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

Organ-Specific and Functional Specialization of Blood Vessels

Susan Quaggini, Northwestern University, USA

Unique Molecular and Functional Requirements of the Renal Vasculature

Anne C. Eichmann, Yale University School of Medicine, USA

Cross-Talk between Vessels and Nerves

Paul S. Frenette, Albert Einstein College of Medicine, USA

Bone Marrow Vascular Niche

Lisandra Vila Ellis, MD Anderson Cancer Center, USA

Short Talk: Investigating Alveolar Angiogenesis in the Developing Mouse Lung

Ching-Ling Ellen Lien, Saban Research Institute, Children's Hospital, USA

Short Talk: Coordinated Development of Coronary Vessels, Cortical Cardiomyocytes and Cardiac Lymphatics Supports Heart Morphogenesis and Regeneration

Regulation of mPTP Opening (Z4)

Toren Finkel, University of Pittsburgh/UPMC, USA

Mouse Models of the Mitochondrial Calcium Uniporter Complex

Elizabeth A. Jonas, Yale University, USA

The Mitochondrial Permeability Transition Pore: Molecular Structure and Function in Health and Disease

John W. Elrod, Temple School of Medicine, USA

Mitochondrial Calcium Exchange in Heart Disease

*Jeffery D. Molkentin*, Cincinnati Children's Hospital Medical Center, USA

Mitochondrial Calcium Regulated by MCU Underlies Skeletal Muscle Adaptation

Amrit U. Joshi, Stanford University SOM, USA

Short Talk: Mitochondrial Dynamics in Neurodegeneration in Patient-Derived Cells and in Animal Models

Vivian Werlinger Rodrigues de Moraes, The Scripps Research Institute, USA

Short Talk: PERK Activation Regulates Mitochondrial Quality Control during Endoplasmic Reticulum Stress

Workshop 2: How to Evaluate Mitophagy and Mitochondrial Function in the Cardiovascular System (Z4)

*Asa B. Gustafsson*, University of California, San Diego, USA
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Angiogenesis and Vascular Disease (Z3)
Scientific Organizers: Luisa Iruela-Arispe, Timothy T. Hla and Courtney Griffin
Sponsored by Janssen R&D: Pharmaceutical Companies of Johnson & Johnson and Journal of Molecular Cell Biology (JMCB)

Mitochondria, Metabolism and Heart (Z4)
Scientific Organizers: Junichi Sadoshima, Toren Finkel and Åsa B. Gustafsson
May 8-12, 2017 • Eldorado Hotel & Spa • Santa Fe, New Mexico, USA
Supported by Bayer HealthCare Pharmaceuticals

Angiogenesis and Vascular Disease (Z3)

Scientific Organizers: Luisa Iruela-Arispe, Timothy T. Hla and Courtney Griffin

Sponsored by Janssen R&D: Pharmaceutical Companies of Johnson & Johnson and Journal of Molecular Cell Biology (JMCB)

Mitochondria, Metabolism and Heart (Z4)

Scientific Organizers: Junichi Sadoshima, Toren Finkel and Åsa B. Gustafsson

May 8-12, 2017 • Eldorado Hotel & Spa • Santa Fe, New Mexico, USA

Supported by Bayer HealthCare Pharmaceuticals


Brian Glancy, NHLBI and NIAMS, National Institutes of Health, USA
The Mitochondrial Reticulum of the Heart

Knut Lauritzen, Oslo University Hospital, Norway
Impaired Dynamics and Function of Mitochondria Caused by mtDNA Damage Leads to Heart Failure

Xiyuan Lu, University of California, Davis, USA
Mitochondrial Subpopulations and Heterogeneity in Adult Cardiac Myocytes Revealed by Confocal Imaging

Liming Pei, Children's Hospital of Philadelphia/University of Pennsylvania, USA
A Heart-Derived Hormone that Regulates Body Growth

Venkatesh Sundararajan, Rutgers New Jersey Medical School, USA
Mitochondrial Lon Protease Protects the Heart in vivo Against Ischemia-Reperfusion Injury by Reducing Oxidative Damage

Nuo Sun, NHLBI, National Institutes of Health, USA
Measuring Cardiac Mitophagy and the Role of USP30 in Heart Failure

Lymphangiogenesis (Z3)

*Anne C. Eichmann, Yale University School of Medicine, USA
Regulation of Postnatal Lymphatic Vessel Development by Foxc1 and Foxc2

Tsutomu Kume, Northwestern University, USA
Mechanisms of Lymphatic Vessel Specialization

Tatiana V. Petrova, CHUV, University of Lausanne, Switzerland
Lymphatics in Myocardial Injury and Repair

Metabolism and Heart Failure (Z4)

*Richard N. Kitsis, Albert Einstein College of Medicine, USA
Chaperone-Mediated Autophagy in the Regulation of Mitochondrial Function and Heart Failure

Rong Tian, University of Washington, USA
The Signaling Role of Branched Chain Amino Acids

Stephen L. Archer, Queen's University, Canada
Role of Acquired Abnormalities in Mitochondrial Dynamics and the Mitochondrial Calcium Uniporter (MCU) in Pulmonary Hypertension

Katsuhito Fuji, University of Tokyo, Japan
Short Talk: Cardiac Macrophage Is Required to Avoid Heart Failure and Cardiac Sudden Death after Pressure Overload

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z3)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z4)

SATURDAY, MAY 13