Belgium-Netherlands Vascular Biology Conference (BeNeVBO)

KU LEUVEN

ULB UNIVERSITÉ LIBRE DE BRUXELLES

Location: STUK Arts Center
Naamsestraat 96 3000 Leuven
Aula 02.C004

Date: September 10-12, 2025

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September 10 - STUK

11:00-12:15 Registration

12:15-12:30 Conference opening

First Session – Pulmonary Arterial Hypertension (Chaired by Patrick Sips and Aernout Luttun)

12.30 Rozenn Quarck, KU Leuven, BE
"Impairment of angiogenesis-driven clot resolution is a key event in the progression of chronic thromboembolic pulmonary hypertension"

12.50 Marie-José Goumans
"Restore endothelial BMP signaling to protect the microvasculature in pulmonary arterial hypertension."

13.10 Selected talk - Beau Fabienne Neep, Amsterdam UMC, NL
"The Role of SOX17 in the Shear Stress Response of the Arterial Endothelium"

13.25 Selected talk - Cacharel Nadeem, Amsterdam UMC, NL
"Lack of FHL2 promotes Pulmonary Arterial Hypertension via inhibition of BMP signaling"

13.40 Wolfgang Kübler, Charité – Universitätsmedizin Berlin, DE
"The role of the endothelium in lung vascular remodeling in pulmonary hypertension"

14:00-14:30 Coffee

14.30 Keynote lecture - Nabila Bouatia Naji, INSERM, FR
Chaired by Ylva Hellsten
"Leveraging Genetics and Genomics to Understand Under-Studied Vascular Diseases Predominant in Women"

Second Session – Lymphatic Biology (Chaired by Valeria Orlova and Elizabeth Jones)

15.15 Agnès Noël, U Liège, BE
"New insights into lymphatic remodeling in lymphedema"

15.35 Selected talk - Pascal Brouillard, UC Louvain, BE
"Primary lymphedema is a complex developmental disease that remains mostly unsolved, despite identification of more than 50 likely causative genes"

15.50 An Zwijsen, KU Leuven, BE
"Lymphatic Functions Regulated by BMP-SMAD Signaling"

16.10 Selected talk - Jakub Ksiazkiewicz, KU Leuven, BE
"Role of BMP/SMAD signalling in patterning of lymphatic endothelium within lymph node"

16.25 Taija Mäkinen, University of Helsinki and Wihuri Research Institute, FI
"Single-cell insights into lymphatic vessel heterogeneity and function"

16:45-18:10 Poster session 1

September 11 - STUK

Third Session – Atherosclerosis (Chaired by Guido De Meyer and Chantal Dessy)

09.00 Mandy Grootaert, KU Leuven, BE
"The role of vascular smooth muscle cell senescence in atherosclerosis"

09.20 Judith Sluimer, University Maastricht, NL
"Fibroblasts in health, ageing and atherosclerosis"

09.40 Selected talk - Justine Lallement, UC Louvain, BE
"Liver–Heart Crosstalk in MASH: PRMT1–ADMA as a Hepatic Driver of Endothelial and Cardiac Dysfunction"

09.55 Selected talk - Leonardo Martin, University of Antwerp, BE
"Mast Cells as Central Regulators of Plaque Instability in a Model of Advanced Atherosclerosis"

10.10 Sikander Hayat, Uniklinik RWTH Aachen University, DE
"Spatial rewiring in human atherosclerosis"

10:30-11:00 Coffee

Fourth Session – Organotypic vasculature (Chaired by Dirk J Duncker and Etto Eringa)

11.00 Aernout Luttun, KU Leuven, BE
"Transcriptional regulation of endothelial diversity in health and disease"

11.20 Reiner Boon, Amsterdam UMC, NL
"Non-coding RNAs in endothelial ageing"

11.40 Selected talk - Soufiane Nassiri, Amsterdam UMC, NL
"Intravenous IRON supplementation in Heart Failure with Preserved Ejection Fraction and iron deficiency (IRON-HFpEF): a comprehensive phase II multicenter placebo-controlled randomised clinical trial"

11.55 Selected talk - Oana Sorop, Erasmus MC, NL
"Coronary microvascular dysfunction in postmenopausal minipigs with multiple risk factors"

12.10 Ylva Hellsten, University of Copenhagen, DK
"Human microvascular dysfunction, role of sexhormones and physical activity"

12:30-13:15 Lunch
13:15-14:00 Poster session 2

14.00 Keynote lecture - Max Mazzone, KU Leuven, BE
Chaired by Ferdinand le Noble
"Macrophage control of the tumor microenvironment"

Fifth Session – Mechanobiology (Chaired by Peter Hordijk and Cara Trivett)

14.45 Stephan Huveneer, Amsterdam UMC, NL

"When tensions rise: force-dependent regulation of endothelial adhesions in development and disease"

15.05 Hans van Oosterwyck, KU Leuven, BE
"Quantifying cell-matrix forces during angiogenic invasion and their role for cerebral cavernous malformations"

15.25 Selected talk - Tong Xu, Amsterdam UMC
"Phosphoproteomics Maps Calcineurin-NFAT-DSCR1.4 Signaling as Druggable Axis in Gαq-R183Q–Driven Capillary Malformations"

15.40 Selected talk - Emilie Maufroy, Université Libre de Bruxelles, BE
"Hemodynamic and Microvascular Adaptations to Interval vs. Continuous Training: A Macro-to-Micro-Perspective"

15.55 Maud Martin, Université Libre de Bruxelle, BE
"The role of microtubules during sprouting angiogenesis: with or without a Y ?"

16:15-16:45 Coffee

Sixth Session – Engineered Vascular Structures (Chaired by Apeksha Shapeti and Nicolas Baeyens)

16.45 Kristina Haase, European Molecular Biology Laboratory, ES
"Engineered Vasculature – bridging human biology with translation"

17.05 Selected talk - Mattia Manenti, Technical University Eindhoven, NL
"Unravelling Neointima Hyperplasia: the Role of Flow Disturbances in Endothelial Cell Activation and Matrix (Dis)organization"

17.20 Lieven Thorrez, KU Leuven, BE
"Growing blood vessels in skeletal muscle: insights from a tissue-engineering perspective"

17.35 Selected talk - Segolene Ladaigue, Institut Curie INSERM, Fr
"A vascularized lung tumor-on-chip approach to decipher how endothelium and tumor microenvironment crosstalk shapes immune infiltration."

17.50 Valeria Orlova, Lieden University Medical Center, NL
"Next-Generation Vascular Disease Models Using Patient-Derived Human Induced Pluripotent Stem Cells (hiPSCs)"

19:30 Conference dinner

20:00 Concert at STUK (JOEnah, not an official conference event)
21:15 Concert at STUK (de Kloe, https://vi.be/platform/dekloe, not an official conference event)

September 12 - STUK

Seventh Session – Cerebrovascular (Chaired by Hannelore Kemps & Annelies Bronckaers)

09.00 Benoit Vanhollebeke, Université Libre de Bruxelle, BE
"Single-cell control mechanism of brain angiogenesis and blood-brain barrier formation"

09.20 Inge Mulder, Amsterdam UMC, NL
"Imaging of Stroke – New insights in impaired (micro-)vascular perfusion in mice"

09.40 Selected talk - Amanda Moya Gomez, Hasselt University, BE
"ELF-EMS improves angiogenesis under ischemic conditions"

09.55 Selected talk - Lisa van Beers, Amsterdam UMC, NL
"An in vivo model to study Cerebral Arterial Gas Embolism"

10.10 Sebastien Foulquier, Maastricht University, NL
"Cardiometabolic stress disrupts crucial mechanotransduction in the brain microvasculature: relevance for cerebral small vessel disease."

10:30-11:00 Coffee

11.00 Keynote lecture – Mikka Vikkula, de Duve Institute, BE (**Chaired by Marie-José Goumans)**
"Vascular malformations: from genetic causes, to preclinical models and clinical trials"

Eighth Session – Vascular Inflammation (Chaired by Jaap van Buul & Lynn Roth)

11.45 Selected talk - HA Hoang Thai, Université Libre de Bruxelles, BE
"Volumetric imaging and single-cell RNAseq atlases identify vascular remodeling as a driver of human dental pulp response during tooth decay progression"

12.00 Selected talk - Stan Muitjens, Maastricht University Medical Centre, NL
"Vascular Remodeling Outcomes in Human Arteriovenous Fistula Maturation are Associated to Long Non-Coding RNA expression"

12.15 Patrick Sips, U Gent, BE
"Studying the role of inflammation in the development of thoracic aortic disease associated with Marfan syndrome"

12.35 Katrien de Bock, ETH Zurich, CH
"Exercise as a model to study endothelial functional heterogeneity"

12.55 Venkat Ayyalasomayajula, Amsterdam UMC, NL
"VASCUL-AID: predictions with AI and proteomics of disease progression in aortic aneurysms"

13:15 **Awards and closing**
(Poster and Oral prizes to be presented by Marie-José Goumans on behalf of Vascular Biology)

Poster Session 1

16:45-18:10 - September 10th

1: Generation and characterization of immortalized Lymphatic Endothelial Cells (LECs)

2: The role of endothelial heterogeneity and tissue-resident immune cells in vascular inflammation and immune cell extravasation
3: A cell mechanical approach to uncover the role of cell-cell forces in hyper-permeability, hyper-sprouting and mosaicism underlying Cerebral Cavernous Malformations
4: Mechanobiological adaptation of the pulmonary artery following Ross procedure in a rodent allograft model
5: SERPINA3 as a promising biomarker and target in doxorubicin-induced cardiovascular toxicity
6: Mitochondria Send Vesicles to Endosomes—Rewriting the Rules of Angiogenic Signal Control
7: Engineering microvascular structures using primary human skeletal muscle microvascular endothelial cells
8: Characterization of endothelial cell subtypes in Venous Malformations including the Blue Rubber Bleb Nevus syndrome by snRNA-seq and bulk RNA-seq.
9: Impact of extracellular acidosis on lipid metabolism and function of endothelial cells
10: Role of BMP-SMAD1/5 signalling in (lymph)angiogenesis
11: Innovative modelling of the human microcirculation: using live-cell imaging to obtain Rho kinetics for in silico modelling of proteostasis
12: Stiffness-driven CEP55 expression regulates endothelial function in atherosclerosis
13: Modeling Patient-Specific Intracranial Aneurysms: From Hemodynamic Analysis to On-Chip Systems
14: Endotrophin as a potential mediator of autophagy-related vascular dysfunction
15: Microvascular dysfunction is associated with incident cardiovascular disease: The Maastricht Study
16: Endothelial Prdm16 limits infarct growth by maintaining cerebrovascular function during ischemic stroke
17: Ex vivo microCT to explore pulmonary vascular tree obstruction pattern in a unique rabbit model of CTEPH
18: Optimization of a co-culture model to study the cross-talk between airway epithelial cells and pulmonary microvascular endothelial cells: a lung on-a-chip approach
19: Engineering Functional Vasculature in hiPSC-Derived Organoids via Self-Assembly and Vessel-on-Chip Technology
20: Frequency-dependent regulation of angiogenesis by ELF-EMS via Hsp90 and PTK2 signaling
21: Semaglutide improves endothelial function by reducing oxidative stress through NCX inhibition in human coronary artery endothelial cells
22: Unique characteristics of transcriptomes of hiPSC-derived endothelial cells from patients with corticosteroid-related central serous chorioretinopathy
23: Systematic disruption of zebrafish fibrillin genes identifies a translational zebrafish model for Marfan syndrome
24: Disruption of arterial-venous differentiation in pulmonary blood vessel networks in response to Fontan non-pulsatile flows.
25: Bridging the maternal-fetal interface: morphogenesis of the vitelline and umbilical vessels in the mouse embryo
26: Distinct aortic endothelial cell subtype promotes vascular inflammation and remodelling during angiotensin II-induced aortic stiffening
27: Intronic PDGFRB variant in familial infantile myofibromatosis, a perivascular disease
28: Characterisation and treatment of the cardiometabolic HFpEF phenogroup

29: Nutritional ketosis: a novel metabolic strategy for the treatment of lymphedema
30: Effects of monomeric and oligomeric flavanols (MOFs) on the hemodynamic response to exercise: a randomized controlled trial
31: Impact of endothelial Piezo1 on cerebral blood flow in cerebral small vessel disease
32: PRISM: Is Prdm16 a pRognostic Indicator for Stroke outcoMe?

Poster Session 2

13:15-14:00 - September 11th

33: Vascular heterogeneity determines leukocyte transendothelial migration efficiency
34: The endothelial glycocalyx as mechanosensor of shear stress: functional and morphological investigation in mouse arteries
35: Is there a relationship between uPARAP and the cytoskeleton in lymphatic endothelial cells?
36: Quantifying Post-Stroke Vascular and Tissue Deformation Using Deformable Image Registration in a Mouse MCAO Model
37: From microvessels to arteries: how size-specific smooth muscle cell responses shape vascular regulation
38: Inhibition of SMYD3 alleviates cognitive impairment in hypertension-cSVD disease by improving endothelial dysfunction and BBB permeability
39: Stem Cell-Driven Early Angiogenesis in 3D Neurovascular Unit Models
40: Loss of endothelial PRDM16 accelerates atherosclerosis and induces a vulnerable plaque phenotype
41: Integrating agent-based modeling and microfluidic platforms to study lymphatic capillary remodeling
42: A novel protein CADENS might enhance cardiac cell communication in heart failure with preserved ejection fraction
43: Cardiac specific gene targeting approach in diastolic function
44: Prevascularized spheroids for microvascular biofabrication
45: MUSCLE-IN-A-DISH: A NOVEL MODEL TO STUDY THE MICROENVIRONMENTAL CONTRIBUTION TO MUSCLE GLUCOSE METABOLISM AND CONTRACTION
46: hiPSC-derived spheroids promote vascular network formation in 3D constructs
47: Creation of a heterozygous PRDM16-deficient rat line to study the role of PRDM16 in pulmonary arterial hypertension
48: Unbiased High-Throughput Drug Screening in a Zebrafish Model of Marfan Syndrome to Identify Novel Treatment Options
49: Cellular senescence: a driver of metabolic rewiring in atherosclerosis?
50: Force-mediated mechanisms underlie wild-type cell recruitment and reprogramming in vascular malformations
51: Integration of single-cell and bulk RNA sequencing predicts transcription factors driving aortic adventitial fibroblasts senescence in human and mice
52: Increasing biocompatibility of cardiovascular implants: promoting re-endothelialisation.
53: Mechanobiology meets microfluidics - recapitulating the mechanics of CCM2-silenced vessels-on-a-chip
54: In vivo interrogation of the contribution of Igfbp2 upregulation to thoracic aortic aneurysm development

55: Extremely low-frequency electromagnetic stimulation (ELF-EMS) as a novel stimulus for improving the angiogenic secretome of dental pulp stem cells
56: Inhibition of CD40-TRAF6 interaction improves microvascular function and left ventricle function in a familial hypercholesterolemia swine model
57: Basal Autophagy Activation Attenuates Aortic Stiffness in a Mouse Model of Elastic Fibre Fragmentation
58: Endothelial glycocalyx degradation in a mouse model of renal ischemia-reperfusion injury: potential protection with recombinant syndecan-1
59: The effect of Empagliflozin on oxidative stress in pulmonary artery endothelial cells exposed to disturbed flow
60: Atherosclerotic plaque fibroblasts originate from adventitial PDGFRA+ progenitor fibroblasts, and a minority acquires a SMC, or MΦ-like fate in the plaque.
61: Pharmacological Pin1 inhibition modulates thrombosis and angiogenesis in pulmonary arterial endothelial cells from patients with chronic thromboembolic pulmonary hypertension
62: The RhoGEF Trio N-terminus promotes the barrier function in corneal endothelial cells
63: Neuropilin-1 Inhibition Ameliorates Pulmonary Hypertension in Mice