

21st International Symposium on Biomechanics in Vascular Biology and Cardiovascular Disease

18 – 19 June 2026

Centre Louis-Jeantet – Rte de Florissant 77, Geneva

Program Thursday 18th June 2026

- 08:45-09:30** **Registration and Welcome Coffee**
- 09:30-09:45** Welcome note from the organizers
Brenda Kwak (University of Geneva, Switzerland)

09:45-12:00 **Mechanotransduction**

- Chairs** **Paul Evans** (Queen Mary University of London, UK)
Elisabeth Jones (Catholic University of Leuven, Belgium)

- 09:45-10:15** **Plenary speaker 1**
Ellie Tzima (University of Oxford, UK)
Mechanisms of endothelial flow sensing

- 10:15-11:30** **Talks selected from abstracts** (10min+4min Q&A)

- 10:15 **Eno Ebong** (Northeastern University, Boston, USA)
Modeling vascular stiffness and flow to probe glycocalyx function and disease

- 10:30 **Anne Cayron** (University of Geneva, Switzerland)
Markers of vulnerable intracranial aneurysm using models of primary cilia deficient zebrafish

- 10:45 **Yun Fang** (University of Chicago, USA)
Endothelial mechanobiology-guided precision nanomedicine for vascular disease

11:00 **Suowen Xu** (University of Science and Technology, Hefei, China)
Desert hedgehog enhances endothelial resilience and prevents atherosclerosis by mitigating PAI-1 signaling

11:15 **Yue Han** (Shanghai Jiao Tong University, China)
PGC1 α regulates the mitochondrial metabolism response to cyclic stretch, which inhibits neointimal hyperplasia

11:30-12:00 **Plenary speaker 2**
Hanjoong Jo (Emory University & Georgia Tech, Atlanta, USA)
Flow-induced reprogramming of endothelial cells

12:00-13:30 **Lunch break**

13:30-15:00 **Effect of sex on disease vulnerability**

Chairs **Brenda Kwak** (University of Geneva, Switzerland)
Tomohiro Aoki (Jikei University School of Medicine, Tokyo, Japan)

13:30-14:00 **Plenary speaker 3**
Ynte Ruigrok (Utrecht University, the Netherlands)
Sex differences in intracranial aneurysms: Biological and hemodynamic processes

14:00-14:30 **Talks selected from abstracts** (10min+4min Q&A)

14:00 **Siyu Tian** (Queen Mary University of London, UK)
Endothelial GATA4 reduces atherosclerotic plaque growth and promotes plaque stability exclusively in females

14:15 **Mannekomba Diagbouga** (University of Geneva, Switzerland)
Sex-specific endothelial responses to shear stress: the role of primary cilia and PKD1 signaling

14:30-15:00

Plenary speaker 4

Jolanda Wentzel (Erasmus Medical Center, Rotterdam, the Netherlands)

Sex-related differences in anatomy, blood flow and atherosclerotic plaque burden and composition

15:00-15:30

Coffee break

15:30-16:30

Poster session 1

Guided tour for pre-selected abstracts (award)

Chairs

Jolanda Wentzel (Erasmus Medical Center, Rotterdam, the Netherlands)

Eno Ebong (Northeastern University, Boston, USA)

16:30-17:30

Keynote speaker

Chair

Frank Gijzen (Technical University, Delft, the Netherlands)

David Steinman (University of Toronto, Canada)

Disordered hemodynamics in cerebrovascular disorders, with implications for vascular mechanobiology

19:15 -

Conference dinner

“La Nautique”

Program Friday 19th June 2026

08:30-11:00

Emerging concepts in mechanotransduction

Chairs

Hanjoong Jo (Emory University & Georgia Tech, Atlanta, USA)

Nathalie Rosenblatt-Velin (University Hospital of Lausanne, Switzerland)

08:30-09:00

Plenary speaker 5

Tatiana Petrova (University of Lausanne, Switzerland)

Mechanotransduction in lymphatic valve development

09:00-09:30

Talks selected from abstracts (10min+4min Q&A)

09:00

Masahiko Itani (Jikei University School of Medicine, Tokyo, Japan)

Identification of a novel subtype of cells regulating the formation of the microenvironment to induce rupture of intracranial aneurysm and the potential Vessel Wall Imaging technology to visualize such a microenvironment

09:15

Mukhayirkhuja Abdurakhmonov (University of Geneva, Switzerland)

Regional hemodynamics and three-dimensional wall-thickness heterogeneity in human intracranial aneurysms

09:30-10:00

Coffee break

Chairs

Philippe Reymond (Geneva University Hospitals, Switzerland)

Guohao Dai (Northeastern University, Boston, USA)

10:00-10:30

Plenary speaker 6

Dionysios Adamopoulos (Geneva University Hospital, Switzerland)

Left atrial wall shear stress correlates with fibrosis in patients with atrial fibrillation

10:30-11:00

Plenary speaker 7

Tzung Hsiai (University of California, Los Angeles, USA)

Mechanically activated snai1b coordinates the initiation of myocardial delamination for trabeculation

11:00-11:30

Talks selected from abstracts (10min+4min Q&A)

11:00

Karol Calo (Politecnico di Torino, Italy)

Linking wall shear stress topological features to regional wall degradation in ascending aortic aneurysms

11:30

Tirosh Mekler (Technion – Institute of Technology, Israel)

An intravascular device utilizing interfacial fluid confinement for localized treatment of brain aneurysms

11:30-13:00

Lunch Break & Poster session 2

13:00-14:30

In vitro models for biomechanical research

Chairs

Marie-Luce Bochaton-Piallat (University of Geneva, Switzerland)

Ryan Coleman (University of Galway, Ireland)

13:00-13:30

Plenary speaker 8

Simone Bersini (Universita della Svizzera italiana, Bellinzona, Switzerland)

High-throughput biofabrication of functional organ-specific human microvessels

13:30-14:30

Talks selected from abstracts (10min+4min Q&A)

13:30

Abdul Barakat (Ecole Polytechnique Palaiseau Paris, France)

Tomographic shearometry of dynamic flows at cell surfaces using nanoprobe

- 13:45 **Michael Sacks** (University of Texas, Austin, USA)
3D contractile and remodeling behaviors of functionally normal and prolapsed human mitral valve interstitial cells
- 14:00 **Janneck Stahl** (Otto-von-Guericke-University Magdeburg, Germany)
Non-invasive pressure gradient reconstruction in sinus stenosis models using 4D flow MRI – an in vitro proof-of-concept study
- 14:15 **Gerhard Sommer** (Graz University of Technology, Austria)
Multiscale structural damage in coronary arteries under simulated stenting

14:30-15:00 **Coffee break**

15:00-17:00 **Advanced imaging for biomechanical forces, wall structure and function**

Chairs **Philippe Bijlenga** (Geneva University Hospitals, Switzerland)
Luke Brewster (University of Cincinnati College of Medicine, USA)

15:00-15:30 **Plenary speaker 9**
Anne Robertson (University of Pittsburgh, USA)
Advanced imaging and analysis of arterial tissues to unravel the coupling between wall structure and strength.

15:30-16:30 **Talks selected from abstracts** (10min+4min Q&A)

15:30 **Hirokazu Koseki** (Jikei University School of Medicine, Tokyo, Japan)

Mechanical stretching forces drive intracranial aneurysm initiation: Evidence from computational fluid dynamics and fluid-structure interaction analyses in an animal model

15:45

Craig Coergen (Purdue University, West Lafayette, USA)

4D ultrasound reveals spatially heterogeneous aortic wall strain in murine aneurysm progression

16:00

Peter Weinberg (Imperial College London, UK)

Heart failure detection: rapid, easy-to-use, low-cost techniques based on reduced methods for characterising arterial pulse waves

16:15

Patryk Rygiel (University of Twente, Enschede, the Netherlands)

Equivariance drives data-efficiency in deep-learning-based estimation of hemodynamics in cardiovascular diseases

16:30-17:00

Plenary speaker 10

Frank Gijzen (Technical University, Delft, the Netherlands)

Investigating the impact of microcalcification size and volume on collagenous matrix and tissue mechanics using a tissue-engineered atherosclerotic cap model

17:00-17:15

Awards ceremony and closing remarks

Posters

- P1** Investigating the role of EPAS1 in endothelial dysfunction in human aortic endothelial cells
(M Amerat, Queen Mary University London, UK)
- P2** Smooth muscle cell-derived S100A4 regulates plaque composition and stability through metabolic control of phenotypic switching
(P Azar, University of Geneva, Switzerland)
- P3** Self-assembled Gadolinium micelles as potential MRI blood pool contrast agent
(A Cayron, University of Geneva, Switzerland)
- P4** From reperfusion to fibrosis: Panx1 Channels in mechanical strain dependent cardiac remodeling
(L Clochard, University of Geneva, Switzerland)
- P5** A Thermodynamic Framework to Predict Aneurysm Development and Growth Motivated by Smooth Muscle Cell Remodelling
(R Coleman, University of Galway, Ireland)
- P6** Sox17 mediates endothelial response to arterial hemodynamics in vein grafts
(G Dai, Northeastern University, Boston, USA)
- P7** Studying the pathogenesis of atherosclerosis Role of S100A4-expressing cells
(G Es Sarhdaoui, University of Geneva, Switzerland)
- P8** Using endothelial colony-forming cells (ECFCs) to analyse inter-individual variation in endothelial responses to wall shear stress.
(V Ferdinand, Queen Mary University London, UK)
- P9** Sex-specific mechanotransduction in endothelial cells: the role of connexin43
(C Fort-Mabboux, University of Geneva, Switzerland)
- P10** Regional Hemodynamics Drive Distinct Pathological Outcomes in Murine Thoracic and Abdominal Aortic Aneurysms
(C Johns, Purdue University, West Lafayette, USA)

- P11** A Cell Motivated Homeostatic Framework to Predict Aneurysm Growth and Remodelling
(P McDonagh, University of Galway, Ireland)
- P12** Oscillatory shear stress augments endothelial Pannexin1 by inhibiting macro-autophagy
(F Molica, University of Geneva, Switzerland)
- P13** Development of a versatile in vitro model able to replicate physiological haemodynamic conditions in the systemic circulation
(C Montessuit, Geneva University Hospitals, Switzerland)
- P14** Novel Dual Action Coating for Vascular Grafts: In Vitro and Flow Studies
(P Reymond, Geneva University Hospitals, Switzerland)
- P15** Sex- and Pregnancy-Dependent Expression of TGF- β and Natriuretic Peptide Receptors in Marfan Aortae
(N Rosenblatt-Velin, University Hospital of Lausanne, Switzerland)
- P16** Role of intracellular calcium handling proteins SERCA3 and TPCs in the α 1-adrenergic and NO-dependent regulation of vascular tone
(M Toth, Université Paris-Saclay, France)
- P17** Automated Spatially Resolved Characterization of the Intracranial Aneurysm Wall in Histopathological Images
(J Traversari, ZHAW, Wädenswil, Switzerland)
- P18** Role of pulsatility in endothelial cell homeostasis and vascular remodelling in the Fontan circulation.
(C Trivett, KU Leuven, Belgium)
- P19** Hearing the Alarm(in): How does alarmin protein S100A4 shape atherosclerotic plaques?
(B Xu, University of Geneva, Switzerland)
- P20** Conversion of Surgical Waste from Open-Heart Surgery into a Model to Investigate the Interaction of Aortic Tissue with TEVAR
(M Yusefi, TU Graz, Austria)
- P21** Hemodynamic Assessment of a Hydrogel Electrospun Material for Transcatheter Aortic Valve Replacement
(V Zacher, Georgia Institute of Technology, Atlanta, USA)