

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**

Chair **Paul Evans** (Queen Mary University of London, UK)

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 in vascular health 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

Chair

Brenda Kwak (University of Geneva, Switzerland)

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)

Chair

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

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)

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 of vessel wall imaging technology to visualize such a microenvironment

09:15

Mukhayyirkuja Abdurakhmonov (University of Geneva, Switzerland)

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

09:30-10:00

Coffee break

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, Haifa, 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**

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

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 shearmetry of dynamic flows at cell surfaces using nanopores

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**

Chair **Philippe Bijlenga** (Geneva University Hospitals, Switzerland)

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
