

Showcasing research from Professor Dual's laboratory, Department of Mechanical Engineering, ETH Zurich, Zurich, Switzerland.

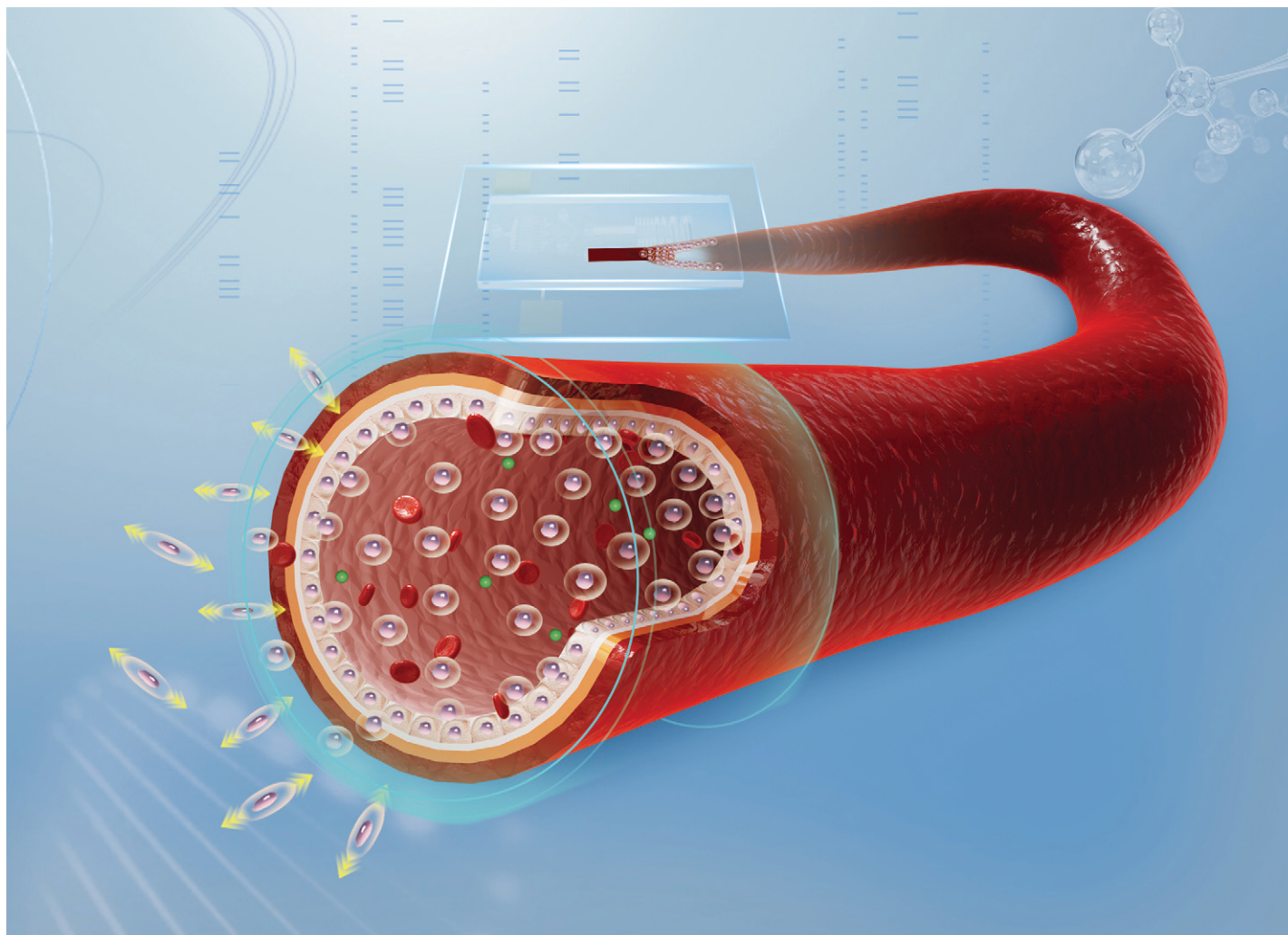
Eye of the Storm - Winner of the Best Research Image Award presented at Acoustofluidics 2022 in Glasgow, UK

Microscope picture of an acoustofluidic chip consisting of a piezoelectric element attached to a silicon die with an etched microchannel sealed by a glass wafer. During operation, a bubble got stuck inside the microfluidic channel. The 5 μm big fluorescent polystyrene particles immersed in water are focused by acoustic forces towards the centre of the channel but on their way through the device, get deflected by the vibrating bubble. A usually highly undesired scenario that in this case leads to a stunning scene worth capturing."

As featured in:



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Featuring work from Professor Hao Yang's research group, School of Mechanical and Electrical Engineering, Soochow University, Suzhou, China.

A microfluidic platform integrating dynamic cell culture and dielectrophoretic manipulation for *in situ* assessment of endothelial cell mechanics

An innovative microfluidic chip that integrates dynamic cell culture, manipulation and dielectrophoretic *in situ* measurement of mechanical properties was developed. The vascular microenvironment was mimicked to investigate the effects of flow rate, $\text{TNF-}\alpha$, and Blebbistatin on the Young's modulus of HUVECs. Results showed that greater fluid shear stress results in increased Young's modulus of HUVECs, suggesting the importance of hemodynamics in modulating the biomechanics. In contrast, $\text{TNF-}\alpha$ and Blebbistatin dramatically decreased HUVEC stiffness. The proposed vascular-mimetic dynamic culture and cellular mechanics monitoring approach paves the way for the accurately and efficiently study on hemodynamics and pharmacological mechanisms.

As featured in:



See Hao Yang, Haizhen Sun, Lining Sun *et al.*, *Lab Chip*, 2023, **23**, 3581.
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