

Video abstract

Atmospheric nanoparticles affect vascular function based on a 3D human vascularized organotypic chip

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Video 1:

A perfusable 3D human microvessels network was constructed in a microfluidic device. The 3D vessel-like architecture exhibited intact vascular tight junctions by immunostaining of Zonula occludens-1 (ZO-1).

Video 2:

A confocal microscope camera was used to capture the real-time intravascular movement of the melamine resin-microparticle (MRM). With the aid of microfluidic flow, the microfluidic chip provides the dynamic power that enables the MRM to flow through the 3D human vasculatures. This perfusion capability of the 3D-vessel-chip mimics circulation in a real human vessel. This dynamic 3D-vessel model makes it possible to administer particles in a 3D human vasculature.