

S. Takeuchi LAB.

[Biohybrid System]



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MEMS/Biotechnology/Tissue Engineering

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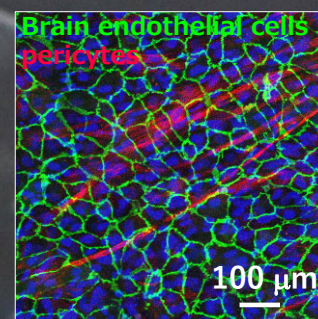
<http://www.hybrid.t.u-tokyo.ac.jp/>

Engineering organ-level function on a chip !

- Evaluation of drug permeability across the blood-brain barrier (BBB) -



Sens Actuators, B, 2021
APL Bioeng, 2022



Human BBB construct grown on a cell culture insert (*In Vitro Cell Dev Biol Anim*, 2020)

“ Organ-on-a-chip is an interdisciplinary technology that enables us to replicate the tissue microarchitecture and functions of living organs on a microfluidic chip. Currently, our group developed a simple and easy-to-handle microfluidic device incorporating a three-dimensional cellular construct of human BBB to estimate the drug transfer to the brain. As compared to the conventional 2D culture method, our device can achieve such complex *in vivo*-like tissue microenvironment involving fluid shear stress. BBB chip is expected to be a promising drug discovery tool with more physiological accuracy.