



京都大学
KYOTO UNIVERSITY

SEMINAR

December 3, 2019

15:00 – 16:00 @ Lecture room 1 (b1N013), C3 Bldg.
Katsura Campus, Kyoto University

Engineering of functional, perfusable 3D microvascular networks on a chip

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Abstract:

It has been known that many diseases such as cancer are involved in blood and lymphatic vessels, which are consequently regarded as major therapeutic targets in recent years. However, with a limitation of conventional experimental platforms including animal model and 2D cell culture model, it is difficult to conduct research on a complex biological phenomenon in a multi-variable control system. To overcome the limitation, we established perfusable and physiologically relevant 3D microvasculature by cell culture technique using ECM hydrogel inside the microfluidic platform. Now, we are working on modeling unique microvascular structure such as blood-brain barrier by co-culturing multiple cells, expecting it to be accompanied by their specific physiological functions. Our 3D constructed blood and lymphatic vessel will be solely analyzed or be integrated into diverse organ-on-a-chip platforms to investigate physiological, pathological processes and to conduct high-throughput drug screening.

Brief Biosketch:

Noo Li Jeon is a Professor of School of Mechanical and Aerospace Engineering at Seoul National University (SNU). He graduated from University of Illinois, Urban-Champaign majoring in Materials Science and Engineering. He worked in Prof George Whitesides' group at Harvard University and Prof Mehmet Toner's group at Harvard Medical School working on soft lithography based microfluidic devices for biomedical research (cell patterning and cell migration). Prior to joining Seoul National University, Noo Li taught at University of California, Irvine from 2001-2009. His current research is focused on developing vascularized organ on a chip platform integrating microtechnology with tissue engineering.

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