서강대학교 SOGANG UNIVERSITY

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Microengineered Biomimicry of Human Physiological Systems

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▲ZOOM 접속 링크

Remarkable progress in life science and technology in the past century has advanced our fundamental understanding of the human body beyond our imagination. The ever-increasing knowledge of human anatomy and biology, however, has done surprisingly little to improve the way we emulate and probe the complex inner workings of the human body. Even today, our ability to model human physiological systems relies on the century-old practice of cell culture or animal experimentation that has raised significant scientific and ethical concerns. The paucity of predictive and human-relevant model systems is emerging as a critical impediment to our scientific endeavors for a wide variety of biomedical applications. This talk will present interdisciplinary research efforts in my laboratory to develop microengineered in vitro models that can emulate the structural and functional complexity of human organs. Specifically, I will talk about i) bioinspired microsystems that mimic the alveoli and airways of the human lung during health and disease, ii) microengineering of vascularized and perfusable 3D human tissues, iii) a blinking eye-on-a-chip microdevice that emulates the ocular surface of the human eye, and iv) microengineered physiological models of human reproductive organs.

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