이름: 안송이/ Song Ih Ahn

직위: 조교수/ Assistant Professor

소속: 부산대학교/ Pusan National University

기타소속: 기계공학부 / School of Mechanical Engineering

강연제목: 뇌 혈관 장벽 온 어 칩을 이용한 뇌 약물 전달 분석

(Microengineered human blood-brain barrier-on-a-chip device for studying brain drug delivery)

Abstract:

The blood-brain barrier (BBB) is a specialized vascular barrier in the brain that prevents most drugs from entering the brain, leading to a high failure rate in the development of therapeutics for the brain diseases. Currently there is a large unmet need for the development of new therapeutics for the brain diseases with an increasing death rate of patients with brain diseases like Alzheimer's disease. One innovative approach to address this challenge is to develop a microengineered model of the human BBB that can mimic the pathophysiological conditions of the human brain. Here, we present a microengineered human BBB-on-a-chip device that recapitulates the physiological barrier structure and function and 3D astrocytic network with reduced reactive gliosis. We also demonstrate the capability of our model to quantify 3D nanoparticle distributions at cellular levels and the distinct cellular uptakes and BBB penetrations through receptor-mediated transcytosis.

Brief Biosketch

Dr. Song Ih Ahn is currently an assistant professor at the School of Mechanical Engineering at Pusan National University. Dr. Ahn received her B.S. and M.S. in Mechanical Engineering from KAIST. She received her Ph.D. degree in Bioengineering from Georgia Institute of Technology and did her postdoc research at University of Minnesota. During her Ph.D., she developed human organs-on-chips for disease modeling and drug delivery. She then focused on 3D printing of organic photodetectors and OLED for her postdoc research. Her current research topics include three areas: (1) investigation of cellular responses to external mechanical stimulation using microfluidic platforms; (2) development of human tissue models on microfluidic devices for disease modeling and drug screening; and (3) 3D printing of implantable bioelectronic devices.