제 126회
ORGAN ON A CHIP 기술교류회

2025.12.04 목 오후 4시 30분

한림대학교 의료·바이오융합연구원 포스터홀

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1. Education

박사: Bioengineering & School of Mechanical Engineering,
Georgia Institute of Technology, USA (2019)
석사: KAIST 기계공학과 (2014)
학사: KAIST 기계공학과 (2012)

2. Experience

2024 ~ 현재	KAIST 기계공학과, 조교수
2021 ~ 2024	부산대학교 기계공학부, 조교수
2020 ~ 2021	Dept. of Mechanical Engineering, Univ. of Minnesota, USA, Postdoctoral Associate

조직 특이적 기능성 인터페이스 설계
Engineering the Tissue-specific Functional Interfaces

Recently, bionic devices, which combine electronic materials with biological systems to replace or enhance the functions of tissues/organs, have emerged as a promising technology for tissue regeneration. Bringing these innovative devices from the lab to the market requires comprehensive testing, including preclinical and clinical testing. Preclinical testing is a critical step that precedes clinical testing to determine the safety and utility of the device.
Despite the valuable contributions of animal models in preclinical testing, it remains challenging with existing animal models to conduct mechanistic studies on the interactions between biological tissues and electronic devices at the cellular and molecular levels. Moreover, the translational gap between animal models and humans has drawn increasing interest in developing advanced in vitro models that recapitulate the structure and function of human tissues. Our research goal is to overcome these challenges by developing in vitro preclinical testing models for biomedical devices that allow highly precise control and real-time monitoring of the interface between tissues and electronic devices.
My previous research has mainly focused on two areas: (1) the development of human tissue models on microfluidic devices for studying the interface between tissues; and (2) 3D printing of electronic devices for biomedical applications. Based on this experience, our current research goal is to develop in vitro models that provide reliable preclinical tools for bioelectronic device implantation. Specifically, we will engineer the models by combining microfabrication and 3D printing technologies to interweave biological and electronic materials. In the long term, we aim to create implantable microengineered devices that can regenerate, restore, and regulate biological functions.

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