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강연제목: Smart design of biomaterials for biomedical and tissue engineering applications

의공학/조직공학 응용을 위한 생체재료의 스마트한 디자인

Abstract: Despite significant progress in biomaterial and biochip design for tissue engineering and organ-on-a-chip platforms, challenges persist in achieving high-throughput capabilities and accurately simulating dynamic biological environments. This presentation will detail innovative solutions that overcome these limitations, enhancing the screening of biological factors and drug efficacy within disease models. We introduce a high-throughput system specifically developed for evaluating microenvironments in knee cartilage, which has successfully identified optimal conditions for cartilage functionality. Furthermore, we have developed a dynamic simulation platform that replicates the physiological characteristics of various tissues, facilitating the creation of more human-like organ chip systems. Additionally, this system integrates with tumor models to accelerate drug screening processes, significantly advancing our understanding of drug interactions in biomimetic settings. Collectively, these advancements represent a transformative approach to tissue engineering and drug discovery, paving the way for more precise and efficient therapeutic evaluations.

Brief Biosketch

2021-Present, Assistant Professor, Materials Science and Engineering, POSTECH, Pohang, Korea

2020-2021, Postdoctoral Researcher, Terasaki Institute for Biomedical Innovation (TIBI), Los Angeles, CA, USA (PI: Dr. Ali Khademhosseini)

2017-2020, Postdoctoral Researcher, Department of Bioengineering, UCLA, Los Angeles, CA, USA

2017-2017, Postdoctoral Researcher, Division of Engineering in Medicine

Brigham and Women's Hospital /Harvard Medical School, Boston, MA, USA

2012-2017, Ph.D., Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA (PI: Dr. Kristopher A. Kilian)

2008-2010, M.S., Materials Science and Engineering, Yonsei University, Seoul, Korea

2003-2008, B.S., Metallurgical System Engineering, Yonsei University, Seoul, Korea