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기타소속:

강연제목: Engineering the Cell-Material Interface for Cell Therapy 세포 기반 치료제 응용을 위한 세포-재료 계면 엔지니어링

Abstract:

A significant portion of biomedical applications necessitates the optimized development of an interface between the cells and the surrounding biomaterials. Therefore, a deeper mechanistic understanding of how the cell behavior is controlled at the molecular level under the desired chemical/physical conditions of biomaterials should lend new insights into the potential future development of biomedical devices or cell therapies. This talk will cover how the cells respond to the diverse properties of, especially, polymeric biomaterials, which encompass the most widespread usage of synthetic and natural materials being used in medical fields today. The polymeric materials were engineered to have different surface energies, chemical functionalities, geometries, mechanical properties, as well as dimensionalities. In particular, integrin-mediated biomolecular processes initiated from the cell-materials interface turned out to play a major role in regulating cellular behaviors. Our findings from this investigation of the interaction between cells and the materials may provide critical guidance as to how the biomaterials for cell therapies or other biomedical devices should be designed.

Brief Biosketch

Prof. Jieung Baek is an assistant professor in the Department of Mechanical and Biomedical Engineering, the ELTEC college of engineering, Ewha Womans University. Dr. Baek earned her B.S., M.S., and Ph.D. in the Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea. She then completed postdoctoral training at University of California, Berkeley, Bioengineering Department, from 2019 to 2023. She started her career as a full-time faculty member in Ewha Womans University since 2023. She has majorly been investigating the role of microenvironmental factors in driving stem cell behaviours to develop biomedical platforms for cell therapy.