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국문 강연제목: 바이오메디컬 소자와 결합된 바이오센서

영문 강연제목: Biosensors integrated with biomedical devices

Abstract:

A biosensor is an analytical device that can specifically quantify the target analyte in a physiological sample. Biosensors have the advantages of portability, simplicity, automation, cost-effectiveness, high stability, and a short detection time. Moreover, biosensors can provide real-time responses, and consequently, they are suitable for point-of-care testing. Biosensors are used in various fields, including clinical diagnosis, agriculture, the food industry, environmental monitoring, and quality control. In this presentation, analytical and diagnostic applications of biosensor are described in particular concerning improvement of sensitivity and integration with biomedical devices. First, immunoaffinity layer based on an autodisplay technology for immunoassays and immunosensors is introduced. Autodisplay is an expression system for the display of recombinant proteins on the outer membrane (OM) of gram-negative bacteria. Affinity proteins such as staphylococcal Z-domains, biotin-binding streptavidin, and streptococcal protein G have been autodisplayed on the OM of *Escherichia coli* for analytical and biomedical applications. Second, the integration of biosensors with biomedical devices such as organ-on-a-chips, microneedles and organoid analysis are introduced.

Brief Biosketch

2016.03 ~ Current: Tenured Associate Professor, Major in Materials Science and Engineering, Hallym University

2018 ~ Current: Associate Editor, Micro and Nano System Letters

2021 ~ 2022: Associate Editor, BioChip Journal

2013.02: Ph. D. in Materials Science & Engineering, Yonsei University

BioChip Journal 학술상(한국바이오칩학회, 2022, 2021), 신진연구자상(마이크로나노시스템학회, 2019), 바이오칩 젊은인재상 (한국바이오칩학회, 2017)