

Cell chip with peptide modified electrode to detect effects of environmental toxins

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Nanoscale fabrication of extracellular matrix proteins are of great interest for immobilizing living cells. We fabricated a nano-scale thin film of peptide on a gold surface, which was confirmed by both scanning tunneling microscopy and surface plasmon resonance spectroscopy. HEK-293 cells grown on the peptide modified surface were subjected to cyclic voltammetric studies. The reduction peak current was found to increase compared to that of bare gold surface. Under the exposure to two kinds of environmental toxins, the voltammetric signals from HEK-293 cells decreased with increasing the concentrations of the toxins. This fabricated cell chip can be a potentially useful tool for monitoring the effects of environmental toxicants. **Acknowledgments:** This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MEST) (2009-0080860) and by the Nano/Bio science & Technology Program (M10536090001-05N3609-00110) of the Ministry of Education, Science and Technology (MEST) and by Seoul R&BD Program(10816)"