Stem Cells on Peptide Nanopatterned Surface for the Detection of Toxic Effects of Olganophosphate Pesticide

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We fabricated peptide nanopatterned gold electrode for increasing the affinity between the cell and electrode surface. RGD-MAP-C peptide was self-assembled on the gold electrode homogeneously via nanoporous anodic alumina oxide mask. Cells were immobilized on fabricated surface and the viability was measured by electrochemical method. Thereafter, neural stem cells were treated with two kinds of environmental toxins, and the intensities of reduction peak measured by cyclic voltammetry were decreased with the increase of concentrations of environmental toxins. These electrochemical results were confirmed by MTT assay. Our newly developed cell chip can be used as useful label-free analyzing tool for detecting drug effects or for assessing the toxicity electrochemically.