

Cell Chip Based on Electrochemical Detection to Analyze the differentiation of Mouse Embryonic Stem Cell

예철현¹, 김현희¹, 김정호², 최정우^{1,3,*}

¹서강대학교 화공생명공학과; ²서강대학교 생명과학과;

³서강대학교 바이오융합기술

(jwchoi@sogang.ac.kr*)

In this study, we made the chips for the cells using synthetic oligopeptide and nanopattern. The peptide was modified by cysteine for the direct self assembly on the gold chip and we investigated the aspect of cells on the nanopattern to decide the best pattern size for cells. And the voltammetric behaviors of MES cells using 1-Naphthyl Phosphate (NP) showed a good linear relationship with cell number. As an application, electrochemical detection of analyzing differentiation of MES cell was shown. These results indicate that RGD peptide self-assembled layer mediated cell immobilization technique and voltammetric signal analysis system can be applied to construct the stem cell chip for the diagnosis, drug detection, and on-site monitoring.

This research was supported by Seoul R&BD Program(10816) and by the Nano/Bio science & Technology Program (M10536090001-05N3609-00110) of the Ministry of Science and Technology (MOST) and by Ministry of Environment of the Republic of Korea as "The Eco-technopia 21 project"