

عنوان مقاله:

Fabrication of an epidermal growth factor receptor (EGFR) immunosensor using an electrochemical GNPs conjugated-antibody/aptamer sandwich assay

محل انتشار:

نهمین کنگره بین المللی سرطان پستان (سال: 1392)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Hoda Ilkhani - *Department of Chemistry, Faculty of Sciences, Tarbiat Modares University, Tehran, Iran*

M. Sarparast - *Department of Chemistry, Faculty of Sciences, Tarbiat Modares University, Tehran, Iran*

Mir F. Mousavi - *Department of Chemistry, Faculty of Sciences, Tarbiat Modares University, Tehran, Iran*

خلاصه مقاله:

Epidermal growth factor receptor (EGFR) is a cellular trans-membrane protein that control critical cell processes such as proliferation, adhesion, migration and apoptosis [1]. Till now, different strategies have been used for construction of a biosensor, among which electrochemical techniques have been a promising alternative to the other techniques. Thus, many research groups including us have attempted to fabricate electrochemical biosensors for diverse biomolecules and with different methodologies [2-4]. In a sandwich-type assay signal amplification can be achieved by simply loading of enzymes, electroactive molecules or other signalling elements such as nanomaterials, to an antibody or antigen [5-6]. In this work, a new strategy has been presented for electrochemical immunosensing of EGFR, as a breast cancer biomarker, by sandwiching the target between an aptamer and an antibody. For fabrication of the immunosensor, a biotinylated human anti-EGFR aptamer was immobilized on streptavidin-coated magnetic beads, which captures EGFR target. Gold Nano Particle (GNP) labelled human anti-EGFR antibody completes the sandwich. Electrochemical signal of GNPs was used for quantification of EGFR in a sample. The fabricated immunosensor responds linearly to EGFR concentration in the range of 0 to 50 ng/mL, with a detection limit down to 1.08 ng/mL (S/N=3). The fabricated immunosensor shows a good result for analysis of real samples obtained from healthy females and those suffering from breast cancer.

کلمات کلیدی:

EGFR, breast cancer, Electrochemical Sandwich assay, immunosensor, aptamer, gold nanoparticles

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/713216>

