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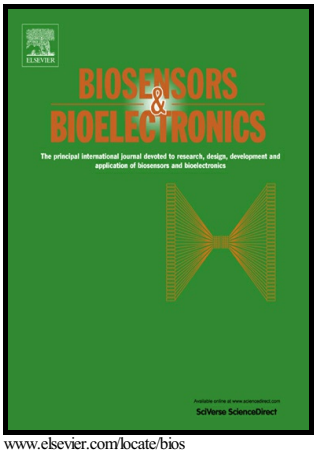

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Abstract

In this present work we made a novel, fast, selective and sensitive electrochemical genobiosensor to detection of EGFR exon 21 point mutation based on two step electropolymerization of Ni(II)-oxytetracycline conducting metallopolymer nanoparticles (Ni-OTC NPs) on the surface of pencil graphite electrode (PGE) which was modified by reduced graphene oxide/carboxyl functionalized ordered mesoporous carbon (rGO/f-OMC) nanocomposite. ssDNA capture probe with amine groups at the5′ end which applied as recognition element was immobilized on the rGO/f-OMC/PGE surface via the strong amide bond. Ni-OTC metallopolymer NPs were electropolymerized to rGO/ssDNA-OMC/PGE surface and then hybridization fallows through the peak current change in differential pulse voltammetry (DPV) using Ni-OTC NPs as a redox label. The biosensor was characterized by field emission scanning electron microscopy (FE-SEM), X-ray diffraction (XRD), FT-IR spectroscopy, energy