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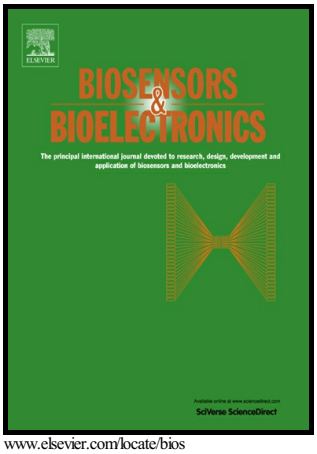

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ACCEPTED MANUSCRIPT

Simultaneous Detection of Gastric Cancer-involved miR-106a and let-7a through a Dual-signal-marked Electrochemical Nanobiosensor

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Abstract

miRNAs are among the novel biomarkers that can be evaluated for sensitive and early cancer diagnosis. In the present study, an electrochemical nanobiosensor has been fabricated to detect two gastric cancer (GC) related miRNAs simultaneously. By employing Au nanoparticles- and CdSe@CdS quantum dots-contained magnetic nanocomposites as electrochemical labels along with the polythiophene/reduced graphene oxide-modified carbon electrodes, this dual signal nanobiosensor showed a considerable performance in quantifying miR-106a (a GC oncogenic miRNA) and let-7a (a GC tumor suppressor miRNA). Using cyclic voltammetry (CV) and differential pulse voltammetry (DPV), not only the accomplishment of desired biosensing platform construction was confirmed, but also its great specificity, appropriate selectivity,

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