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A graphene oxide-based label-free electrochemical aptasensor for the detection of alpha-fetoprotein

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ABSTRACT

A label-free method for the determination of alpha-fetoprotein (AFP) was successfully developed by graphene oxide (GO)-based electrochemical aptasensor. This aptasensor was constructed by covalently immobilizing NH₂-functionalized AFP-specific aptamer on GO with plenty of carboxylic groups. Cyclic voltammetry (CV) and electrochemical impedance spectra (EIS) analysis were carried out to investigate the practicability of the fabrication procedures. Fourier transform infrared spectra (FTIR), Raman, atomic force microscopy (AFM) and scanning electron microscope (SEM) were performed to indicate the changes of the sensing interface. CV was used to detect the signal change of the aptasensor. Peak current of CVs changed before and after incubating the aptasensor with different concentration of AFP solution. The changes of peak

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