Label Free C-reactive Protein Detection Based on An Electrochemical Sensor for Clinical Application

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This study describes the facile and effective fabrication of electrochemical biosensors based on a glassy carbon electrode coated with graphene quantum dots (GQD). The prepared electrode shows a desirable electrochemical response, since the graphene is favourably conductive. The prepared GQD designed biosensor has been employed for C-reactive protein (CRP) detection in blood serum. Herein, charge transfer resistance variations were significantly target specific, showing a linear relationship with log CRP concentration (0.5–70 nM) and a low limit of detection (LOD) of 176 pM. This technique could be employed to achieve one-step CRP detection and has the potential to be applied to clinical atrial fibrillation (AF) analysis after CABG.

Keywords: Atrial fibrillation; Electrochemical sensor; C-reactive protein; Graphene quantum dots; CABG

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