Hollow Gold Nanoshell Modified Electrode as Electrochemical Biosensor for Hemoglobin and Its Analytical Application

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In this paper hollow gold nanoshell (HGNs) was modified on carbon ionic liquid electrode (CILE), which was used for further immobilization of hemoglobin (Hb) with Nafion film step by step to get an electrochemical Hb sensor. UV-Vis absorption spectroscopy proved that Hb was not denatured after mixed with HGNs without change of the Soret band. Electrochemical studies proved the realization of direct electrochemistry of Hb on the HGNs/CILE and electrochemical parameters were calculated in details. Electrocatalysis, sample detection, and the stability of sensor were also investigated to show the analytical applications of this electrochemical sensor, which extended the usage of HGNs in electrochemical fields.

Keywords: Hollow gold nanoshell; Hemoglobin; Electrochemical sensor; Modified electrode; Carbon ionic liquid electrode

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