

Metalloprotein Electrochemical Signal Control based on Graphene Oxide Sandwiched Nanocomplex

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Metalloprotein is specifically bound to graphene oxide spin coated on metal electrode to form a well distributed nanocomplex. Graphene oxide, as an electron transfer mediator, sandwiched between metal electrode and protein is employed to investigate electrochemical properties variation of metalloprotein. Different kinds of nanocomplexes composed of various metalloproteins based on several binding methods are fabricated to analyze electrochemical behavior of these materials. Structural conformation of nanocomplex on solid substrate is probed by atomic force microscopy which is in a good agreement with previous reports. Cyclic voltammetry, chronocoulometry, and chronoamperometry were also implemented to verify electrochemical signal transformation of proteins upon introducing grapheme oxide. Well- controllable and sensitive redox signals generated from metalloproteins were obtained and seen to be different phenomena, comparing with our previous works.