Development of an Ultrasensitive Electrochemical Method for Copeptin Content Determination

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Coronary heart disease, coronary syndrome and other cardiovascular diseases are globally predominant fatal conditions, although they can be prevented to a large extent. The determination of proper therapeutic options can be facilitated by copeptin level detection. A nanocomposite of reduced graphene oxide (RGO) and titania (TiO₂) was employed to fabricate a tag-free biosensor in this contribution. To specifically recognize and detect copeptin, this RGO-TiO₂ nanocomposite was functionalized with antibodies that are conjugated by protein (horseradish peroxidase). This biosensor exhibits enhanced biosensing traits for copeptin determination. Small-scale diagnostic equipment could be developed on the basis of this Ab-copeptin/RGO-TiO₂/ITO immunoelectrode.

Keywords: Cardiovascular diseases; Immunosensor; Copeptin; Graphene oxide; Titania

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