Fabrication of Electrochemical Immunosensor for Cardiac Biomarker Troponin I Determination and Its Potential for Acute Myocardial Infarction Diagnosis

Zhibo Li¹, Ke Ma³, Zhihua Cheng³, Cui Yan^{1*} and Guifeng Liu^{2*}

¹The Second Hospital of Jilin University, 218 Ziqiang St, Nanguan Qu, Changchun Shi, Jilin, 130041, P.R. China

² The Third Hospital of Jilin University, Jilin, 130041, P.R. China

³ The First Hospital of Jilin University, Jilin, 130041, P.R. China

*E-mail: hqhy32302@sina.com; jlfsluguifeng@163.com

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The detection of cardiac troponin I (cTnI) at extremely low concentration was highly demanded since it was identified as a principal diagnostic marker for acute myocardial infarction. In this study, a composite of poly(diallyldimethylammonium chloride) (PDDA) and reduced graphene oxide (RGO) was successfully prepared and then employed for constructing immunosensors. The proposed immunosensor demonstrated excellent performance for the determination of cTnI with low detection limit (0.024 ng/mL) and wide linear response range (0.1-10 ng/mL). The proposed immunosensor has demonstrated promising potential in diagnose of acute myocardial infarction owing to the great deal of advantages such as remarkable sensitivity and reproducibility.

Keywords: Immunosensor; Cardiac biomarker; Troponin I; Graphene; Acute myocardial infarction

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