Electrochemical Analysis of Ki67 Protein As Pancreatic Cancer Biomarker Based on Graphene-Polydopamine Nanocomposite

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An electrochemical immunosensor was studied for sensitive detection of Ki-67 protein based on a dual amplification mechanism resulting from Au nanoparticles (AuNP)–polydopamine (PDA) as the sensor platform. By utilizing PDA, biomolecules were immobilized for both the construction of the sensor platform and the signal labeling. The particular platform of AuNP-PDA, as well as synthesizing horseradish peroxidase (HRP)-antibody (Ab2) functionalized AuNP-PDA@graphene was utilized to immensely enhance the sensitivity. The amperometry determination was used to obtain a linear response range of Ki-67 which was from 4 to 800 pg/mL, along with a very low detection limit (1.7 pg/mL)

Keywords: Pancreatic neuroendocrine tumor; Ki-67; Immunosensor; Polydopamine; Graphene

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