

Fabrication of Electrochemical miRNA-155 Biosensor Composed of with Multifunctional DNA Structure/Gold nanoparticle Heterolayer for Early Diagnosis of Breast Cancer

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The importance of early diagnosis has been grown up to the breast cancer patients increased. In this study, authors fabricated the electrochemical biosensor composed of multifunctional DNA 3 way-junction (3WJ) and gold nanoparticles for detecting miRNA-155. The multifunctional DNA 3WJ was prepared for detecting miRNA-155, signal generation and immobilization process all at once. Gold nanoparticles were used for electrochemical signal amplification. After the gold nanoparticles were immobilized on the Au substrate, the probe is immobilized through the self-assembly. The surface of the Au substrate was investigated by atomic force microscopy (AFM). The miRNA-155 was detected using cyclic voltammetry (CV). The proposed biosensor can be a great platform for early detection of breast cancer in the future.

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