

عنوان مقاله:

A gold nanoparticles biosensor for detection of miRNA-۱۲۲ in breast cancer

محل انتشار:

چهارمین کنگره بین المللی و شانزدهمین کنگره ملی ژنتیک (سال: 1399)

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خلاصه مقاله:

Background and Aim: Prerequisite achieving better life quality is identification of the daises with sensitive, rapid and continuous methods. Sensors and biosensors have many applications in clinical diagnosis, pharmacogenetic researches, drug discovery, gene analysis, identification of viruses and bacteria, and detection of bioterrorism and biological warfare agents. In fabrication of these devices, the use of nanomaterials causes increment in the sensitivity and possibility to use in more complex matrices. In the study, a genosensor (microRNA-based biosensor) fabricated by gold nanoparticles for a rapid, simple and low-cost detection of Brest cancer. Methods: Gold nanostructures were synthesized using sonoelectrodeposition method. SEM and voltammetric methods were employed to characterize the nanostructures. a specific probe was firstly immobilized on the gold nanoparticles. Then, hybridization process with non-complementar and complementary sequences were investigated by electrochemical methods. Results: The figure of merit of the Breast cancer genosensor revealed that this genosensor had an ultrasensitivity (LOD from the order of zeptomolar) and ability to detection the complementary sequence without PCR. Conclusion: So, suggested biosensor enables miR-۱۲۲ detection at very low concentrations and may be an extended measurement strategy easily expanded .to identify other miRNAs and is a promising tool for basic research and clinical application

کلمات کلیدی:

Genosensor; Gold nanoparticles, Breast cancer

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