عنوان مقاله:

DNA Electrochemical Nanobiosensors for the Detection of Biological Agents

محل انتشار:

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خلاصه مقاله:

In this study, we explained a nanobiosensor for DNA sequence detection, featuring sequence specificity, cost efficiency, speed, and ease of use. Without the need forlabels or indicators, it may be ideal for the detection of biological agents. This review describes recent advances in electrochemical impedance spectroscopy (EIS)with an emphasis on using nanoparticles and nanotechnology. A powerful biosensor system requires a high-performance biosensor component as welll as a user-friendly instrumental setup. However, biosensor setups have to be adapted to specific applications. Rapid, selective and sensitive detection technologies for biological agents are critical in clinical diagnosis, environmental monitoringand food safety. Recent developments in nanomaterial create many opportunities to advance DNA sensing and gene detection. The fact that gold nanoparticlesare able to provide a stable immobilization of biomolecules that retain their bioactivity is a major advantage for the preparation of biosensors. Although, there are alot of researches reporting electrode modification by different nanomaterial to improve the DNA biosensor performance, the preparation of nanomaterial or the electrodemodification strategy is often relatively complex. Furthermore, some DNAbiosensors based on nanomaterial modification are still very limited for the improvement of DNA biosensor performance. Thus, the construction of nanostructure modified electrode by a simple strategy to improve the DNA detection sensitivity is highly desirable.

کلمات کلیدی:

DNA Hybridization, Electrochemical Impedance Spectroscopy, Nanobiosensor