

Advancing Nucleic Acid Biosensors based on nanomaterials for electrochemical monitoring of Nucleic Acid interactions

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An expanding assortment of sensors is having a growing effect on daily life. When integrating biosensing platforms, it is crucial to consider the need for low costs and the possibility of real-time monitoring, especially for point-of-care applications where simplicity is also a factor.

Nanomaterials-based biosensors that are highly sensitive and precise have made it possible to develop new technologies for the early detection and diagnosis of disease-related biomarkers, food security and environmental monitoring. The appealing characteristics of nanomaterials have opened up possibilities for creating various electrochemical biosensors with enhanced analytical capabilities towards numerous applications [1-8].

This presentation provides an overview of recent advances in electrochemical nucleic acid biosensors utilizing nanomaterials, along with a discussion of their future prospects.

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References

- [1]. X. Liu, L. Huang, K. Qian, *Advanced NanoBiomed Research*, 1 (6) (2021) 2000104.
- [2]. C. Zhu, G. Yang, H. Li, D. Du, Y. Lin, *Analytical Chemistry*, 87 (1) (2015) 230-249.
- [3]. A. Erdem, *Talanta*, 74 (3) (2007) 318-325.
- [4]. E. Yarali, E. Kanat, Y. Erac, A. Erdem, *Electroanalysis*, 32 (2) (2020) 384-393.
- [5]. E. Yildiz, B. Yurdacan, Y. Erac, A. Erdem, *Talanta*, 252 (2023) 123854.
- [6]. G. Congur, A. Erdem, *Journal of The Electrochemical Society*, 170 (5) (2023) 056508.
- [7]. A. Bozoglu, E. Eksin, A. Erdem, *Journal of Biotechnology*, 395 (2024) 64-70.
- [8]. H. Senturk, A. Erdem, *Microchemical Journal*, 199 (2024) 109987.