Miniaturized Electrochemical Immunosensor for Label-Free Detection of Growth Hormone

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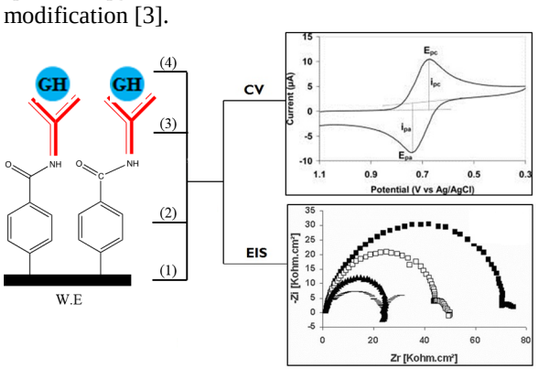
A miniaturized immunosensor was developed in connection with disposable screen-printed chips for the point-of-care detection of growth hormone [1]. The performance of the miniaturized system was studied using growth hormone as the target protein and compared with a conventional electrochemical analyzer. The detection limit of 25 pg/mL was observed for GH in 20 mL sample volume, which indicated that this versatile platform can be easily adapted for decentralized electrochemical immunosensing of clinically important proteins.

In this study, 4-methoxybenzenediazonium tetrafluoroborate was electrochemically deposited through a reduction reaction, and subsequently activated using 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC) and N-hydroxysuccinamide (NHS), The antibody was immobilized by covalent bond between primary amine and carboxylic end group [2]. The electrochemical measurements utilize the redox activity of ferro/ferricyanide in cyclic voltammetry and impedance spectroscopy to characterize the surface for each modification [3].



References

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