

Dopamine biosensor composed of silver nanoparticle-graphene oxide for electrochemical signal enhancement

임종표, 신민규, 신재욱, 최정우[†]
서강대학교
(jwchoi@sogang.ac.kr[†])

Measurement of dopamine (DA) is important for diagnosis of neurogenic diseases such as Alzheimer's disease and Parkinson's disease. DA is a neurotransmitter that acts in the pathogenesis of these diseases. In this study, biosensor composed of silver nanoparticle and graphene oxide (SNP-GO) is developed to detect DA with electrochemical signal enhancement. To fabricate this biosensor, SNP and GO are deposited sequentially onto the ITO electrode by electrochemical deposition method to increase electrochemical signal. From the result, fabricated electrode shows enhanced detection limit for DA with high sensitivity compared to conventional electrodes. Furthermore, this electrode detects DA in real human serum sample prepared with DA. This biosensor composed of SNP-GO can be applied as the sensing platform to develop a various biosensor with increased electrochemical signal. Acknowledgement: This research was supported by National Research Foundation of Korea (NRF) (2013K1A4A3055268 and 2016R1A6A1A03012845).

Reference

1. J. -W. Shin, K. -J. Kim, J. Yoon, J. Jo, W. A. El-Said and J. -W. Choi, Sensors, 17, 2771 (2017).