A novel sensing platform based on Polyglycine-Modified CVD Graphene for the Simultaneous Determination of Dopamine, Uric Acid, Guanine and Adenine

Yitao Zhang, Ziwei Wang, Hongxia Luo*

Department of Chemistry, Renmin University of China, Beijing 100872, China

*E-mail: luohx@ruc.edu.cn

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A novel strategy based on a free-standing graphene platform electrode (GPE) incorporating polymerized glycine (poly-Gly) was proposed to simultaneously discriminate dopamine (DA), uric acid (UA), guanine (G) and adenine (A). Graphene film grown by chemical vapor deposition (CVD) was diverted onto polyethylene terephthalate (PET) under the support of polymer. Subsequently, GPE was successfully constructed by immersing the composite in acetone to remove the polymer. Gly was anchored on the platform to obtain poly-Gly/GPE by performing a simple electropolymerization technique. The proposed electrode exhibited high selectivity and excellent electrocatalytic activities to discriminate the four biomolecules. The potential differences of DA-UA, UA-G and G-A were 160, 400 and 315 mV, respectively.

Keywords: CVD graphene; Glycine; Electrochemical sensing

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