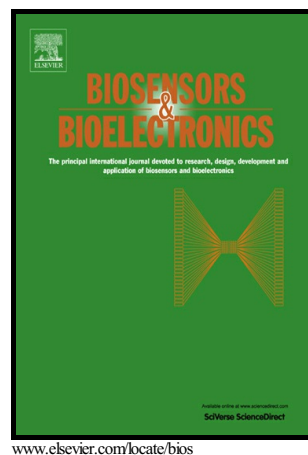


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Ru(bpy)₃²⁺-Silica@Poly-L-lysine-Au as labels for electrochemiluminescence lysozyme aptasensor based on 3D graphene

Fang-Kai Du^a, Hui Zhang^a, Xue-Cai Tan^{a*}, Jun Yan^a, Min Liu^a, Xiao Chen^a, Ye-Yu Wu^a, De-Fen Feng^a, Quan-You Chen^a, Jian-Mei Cen^a, Shao-Gang Liu^a, Yu-Qin Qiu^a, He-You Han^{a,b}

^a Guangxi Key Laboratory of Chemistry and Engineering of Forest Products, Key Laboratory of Guangxi Colleges and Universities for food safety and pharmaceutical analytical chemistry, School of Chemistry and Chemical Engineering, Guangxi University for Nationalities, Nanning 530008, PR China

^b State Key Laboratory of Agricultural Microbiology, College of Science, College of Food Science and Technology, Huazhong Agricultural University, Wuhan 430070, PR China

*Corresponding author at: Guangxi Key Laboratory of Chemistry and Engineering of Forest Products, Key Laboratory of Guangxi Colleges and Universities for food safety and pharmaceutical analytical chemistry, School of Chemistry and Chemical Engineering, Guangxi University for Nationalities, Nanning 530008, PR China. gxunxctan@126.com (X.-C. Tan).

Abstract:

In this work, the feasibility of a novel sensitive electrochemiluminescence aptasensor for the detection of lysozyme using Ru(bpy)₃²⁺-Silica@Poly-L-lysine-Au (RuSiNPs@PLL-Au) nanocomposites labeling as an indicator was demonstrated. The substrate electrode of the aptasensor was prepared by depositing gold nanoparticles (AuNPs) on 3D graphene-modified electrode. The lysozyme binding aptamer (LBA) was attached to the 3D graphene/AuNPs electrode through gold-thiol affinity, hybridized with a complementary single-strand DNA (CDNA) of the lysozyme aptamer labeled by RuSiNPs@PLL-Au as an electrochemiluminescence intensity amplifier. Thanks to the synergistic amplification of the 3D graphene, the AuNPs and RuSiNPs@PLL-Au NPs linked to Ru(bpy)₃²⁺-ECL further enhanced the ECL intensity of the

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