Author's Accepted Manuscript

www.elsevier.com/locate/talanta

A novel electrochemiluminescent immunoassay for diclofenac using conductive polymer functionalized graphene oxide as labels and gold nanorods as signal enhancers

Chao Wang, Tingxiang Jiang, Kang Zhao, Anping Deng, Jianguo Li

PII: S0039-9140(18)31022-1
DOI: https://doi.org/10.1016/j.talanta.2018.09.103
Reference: TAL19122

To appear in: *Talanta*

Received date: 1 June 2018
Revised date: 7 September 2018
Accepted date: 29 September 2018

Cite this article as: Chao Wang, Tingxiang Jiang, Kang Zhao, Anping Deng and Jianguo Li, A novel electrochemiluminescent immunoassay for diclofenac using conductive polymer functionalized graphene oxide as labels and gold nanorods as signal enhancers, *Talanta,* https://doi.org/10.1016/j.talanta.2018.09.103

A novel electrochemiluminescent immunoassay for diclofenac using conductive polymer functionalized graphene oxide as labels and gold nanorods as signal enhancers

Chao Wang, Tingxiang Jiang, Kang Zhao, Anping Deng*, Jianguo Li*

The Key Lab of Health Chemistry & Molecular Diagnosis of Suzhou, College of Chemistry, Chemical Engineering & Materials Science, Soochow University, Suzhou 215123, China

denganping@suda.edu.cn

lijgsd@suda.edu.cn

*Correspondence author. Tel.: +86 51265882195; fax: +86 51265882195

*Correspondence author. Tel.: +86 51265882362; fax: +86 51265882362.

ABSTRACT

Diclofenac (DCF) is among the pharmaceutical compounds of concern based on its nocuousness in environment. In this work, a novel electrochemiluminescent (ECL) immunosensor for detecting DCF was constructed using poly(etherimide)-poly(3,4-ethylene dioxythiophene):poly(styrene sulfonate) functionalized graphene oxide and CdSe@CdS quantum dots (QDs-PEI-GO/PEDOT) as bioreceptor for conjugating DCF antibody to magnify signal. It is worth noting that this is the first time GO/PEDOT has been applied to ECL sensor field. Compared with GO, GO/PEDOT exhibited a higher conductivity and more stable chemical property, indicating that the proposed immunosensor would possess stronger and more stable luminescence performance. In addition, the electrode was modified with gold nanorods (AuNRs) which increase the load capacity of DCF coating antigen through