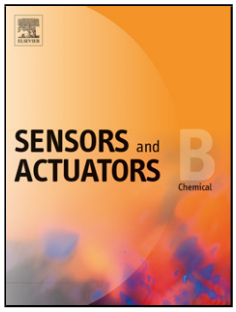

Title: Selective and sensitive glycoprotein detection via a biomimetic electrochemical sensor based on surface molecular imprinting and boronate-modified reduced graphene oxide

Authors: Jing Huang, Yunan Wu, Jiaojiao Cong, Jing Luo, Xiaoya Liu

PII: S0925-4005(17)32375-4
DOI: https://doi.org/10.1016/j.snb.2017.12.049
Reference: SNB 23737

To appear in: *Sensors and Actuators B*

Received date: 19-6-2017
Revised date: 27-11-2017
Accepted date: 9-12-2017

Please cite this article as: Jing Huang, Yunan Wu, Jiaojiao Cong, Jing Luo, Xiaoya Liu, Selective and sensitive glycoprotein detection via a biomimetic electrochemical sensor based on surface molecular imprinting and boronate-modified reduced graphene oxide, Sensors and Actuators B: Chemical https://doi.org/10.1016/j.snb.2017.12.049

Selective and sensitive glycoprotein detection via a biomimetic electrochemical sensor based on surface molecular imprinting and boronate-modified reduced graphene oxide

Jing Huang, Yunan Wu, Jiaojiao Cong, Jing Luo*, Xiaoya Liu

Key Laboratory of Synthetic and Biological Colloids, Ministry of Education, School of Chemical and Material Engineering, Jiangnan University, Lihu Street 1800, Wuxi 214122, Jiangsu, China

* Corresponding author. E-mail: jingluo19801007@126.com Tel.: 86-510-85917763

Highlights

- Boronate-modified graphene-molecular imprinted composite (BGR@MIP) was prepared
- BGR@MIP showed good selectivity toward OVA combining boronate affinity and MIP effect
- The BGR@MIP sensor showed a wide linear response to OVA and low detection limit

Abstract: Glycoproteins are closely associated with the occurrence of diverse diseases, and they have been used as biomarkers and therapeutic targets in clinical diagnostics. The selective and sensitive sensing of glycoproteins still remains a challenge. Herein, we describe a biomimetic electrochemical sensor based on a novel boronate-modified graphene-molecular imprinted polymers composite (BGR@MIP) as recognition element that is well suited for detecting glycoproteins selectively and sensitively. Boronic acid functionalized reduced graphene oxide (BGR) bearing a covalent ester linkage to glycoprotein via boronate affinity was synthesized and used