Sensing of glycoprotein via a biomimetic sensor based on molecularly imprinted polymers and graphene-Au nanoparticles

Xindong Wang [a], Jing Dong [a,b], Huami Ming [a], Shiyun Ai [a] [*]

a College of Chemistry and Material Science, Shandong Agricultural University, Taian, Shandong, 271018, China

b College of Resources and Environment, Shandong Agricultural University, Taian, Shandong, 271018, China

* Corresponding authors.

Tel: +86 538 8249248

Fax: +86 538 8242251

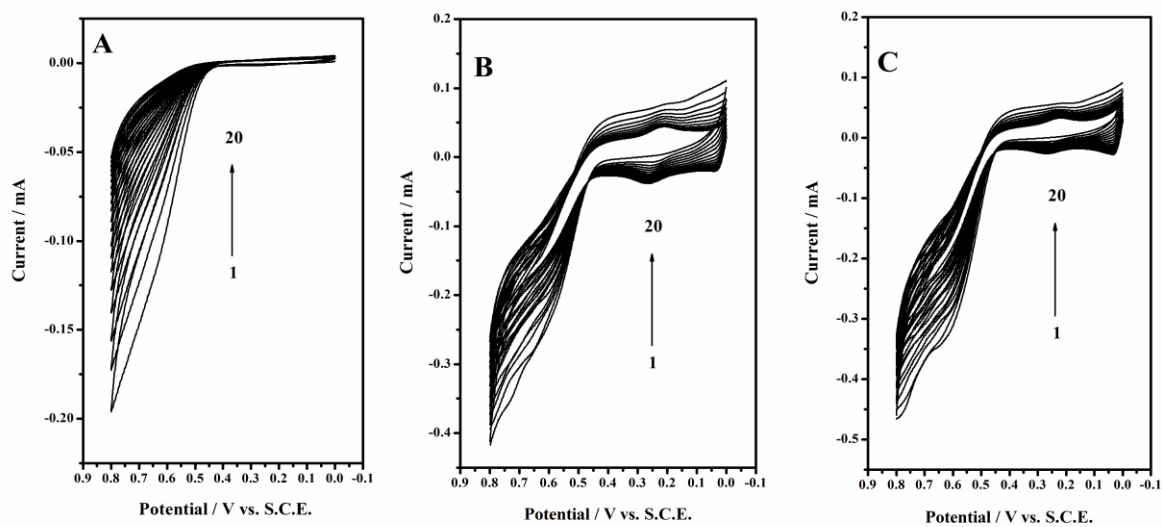E-mail address: ashy@sdau.edu.cn (S.Y. Ai)

Fig. S1 CVs of the electropolymerization on bare GCE (A), NIP/Gr-AuNPs/GCE (B),

MIP/Gr-AuNPs/GCE (C) for 20 cycles in ABS (pH 5.0). The voltage range: 0.0

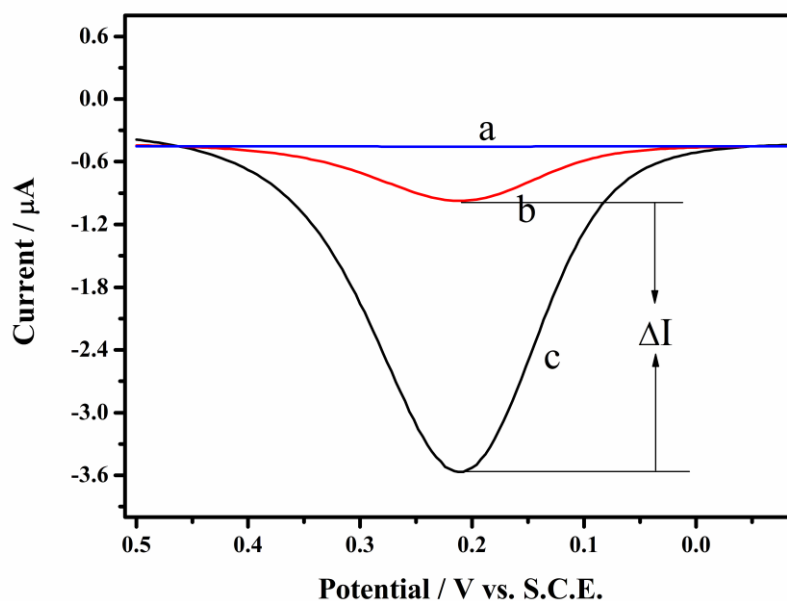to 0.8 V; scan rate: 0.1 V/s; OPD: 5 mM; ABA: 10 mM.

Fig. S2 The DPV curves for NIP/Gr-AuNPs/GCE (a), NIP/Gr-AuNPs/GCE with 6-ferrocenylhexanethiol (b), and MIP/Gr-AuNPs/GCE with 6-ferrocenylhexanethiol (c).

In Fig.S2, it shows obviously that the peak current of curve a is almost completely invisible. We use I_1, and I_2 to represent the peak current of curve b and curve c, respectively, and $\triangle I$ was used to denote the difference of I_1 and I_2 as follows: $\triangle I = I_2 - I_1$. So $\triangle I$ correlates with the concentration of BSA, and eliminates the interference of physically absorption of probe moleculars in the polymer film.

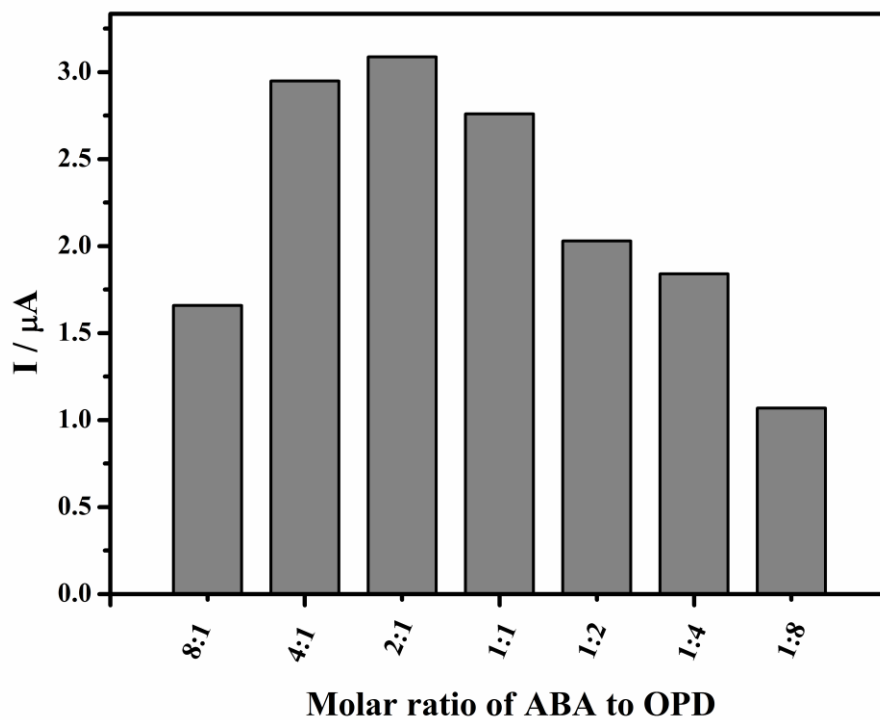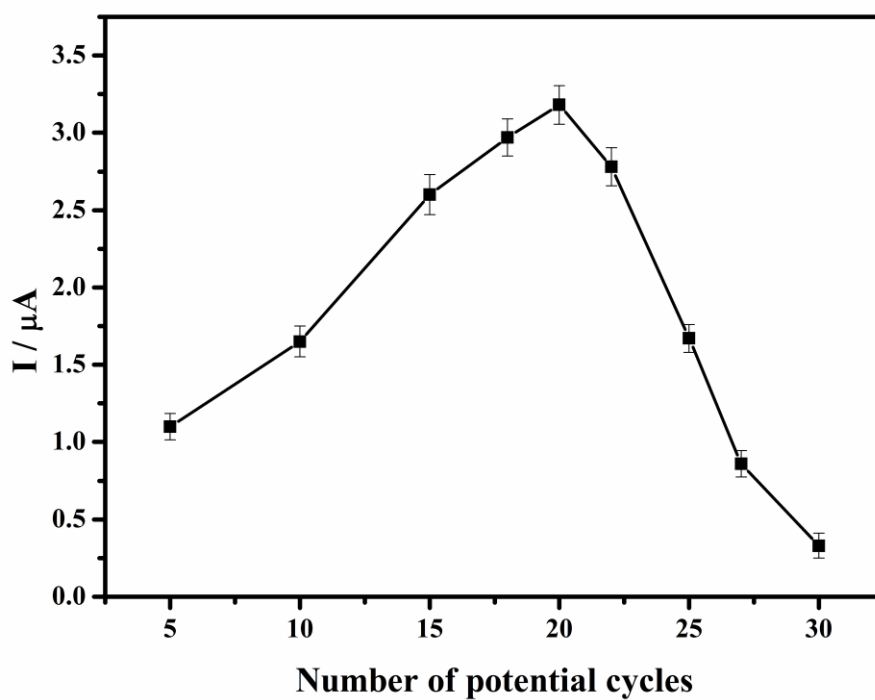**Fig. S3** The effect of monomers molar ratio on the response current

Fig. S4 The effect of the number of potential cycles on the response current
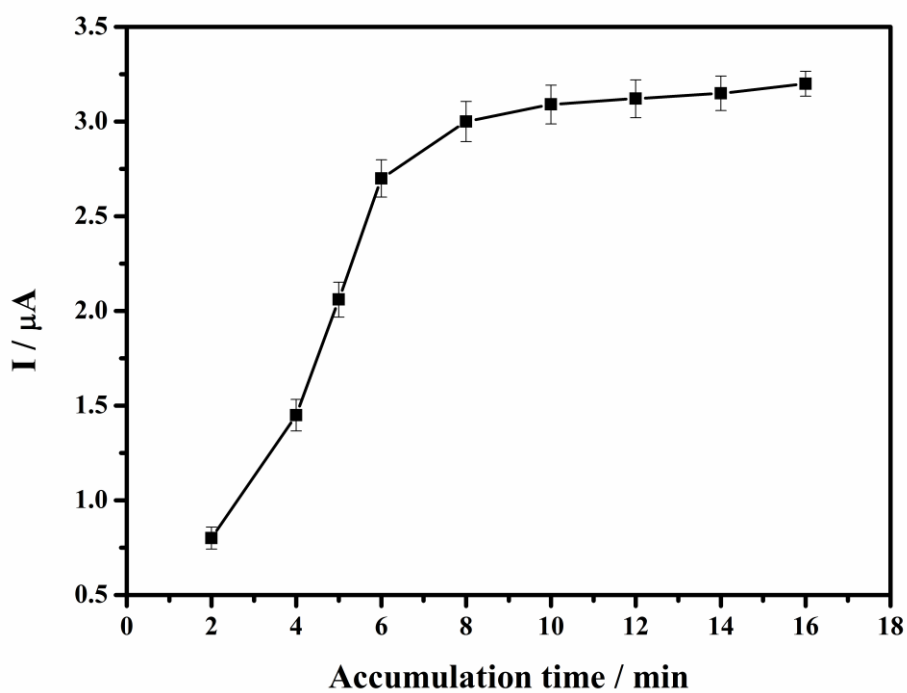
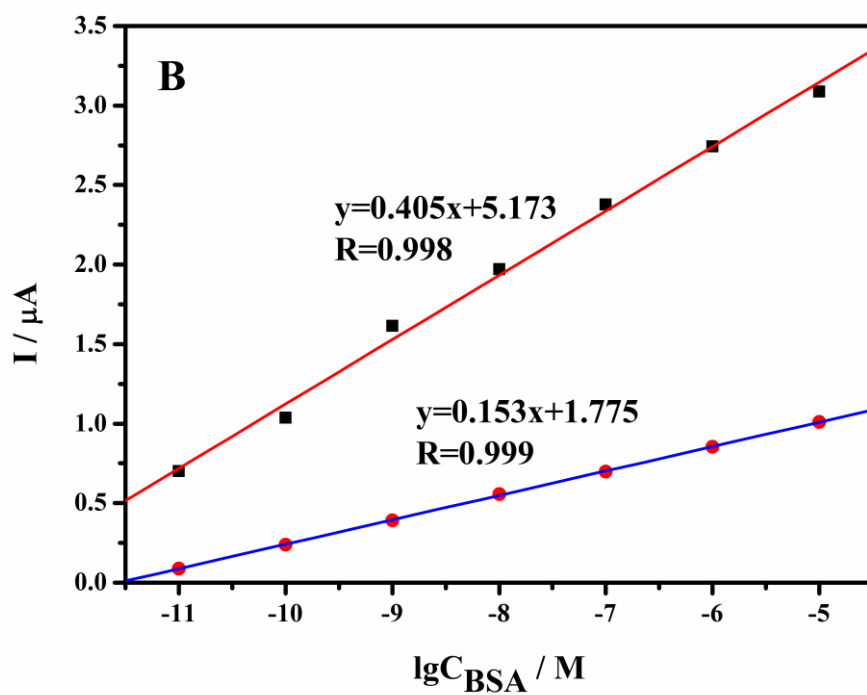**Fig. S5** The effect of accumulation time on the response current

$$y=0.405x+5.173$$
$$R=0.998$$

$$y=0.153x+1.775$$
$$R=0.999$$

Fig. S6 calibration plots of MIP and NIP.

Table S1 Regeneration experiments of the sensors

BSA standard solutions (g/mL)	1.0×10^{-5}	5.0×10^{-6}	1.0×10^{-6}	5.0×10^{-7}
(I) Response currents (μA) [a]	3.151	3.022	2.738	2.620
(II) Response currents (μA) [b]	2.923	2.802	2.547	2.436
(III) Response currents shift (%) [c]	7.236	7.280	6.976	7.023

[a]: BSA were detected by new prepared sensors.

[b]: BSA were detected by regenerated sensors.

[c]: III = (I − II) / I × 100%.