Supporting Information

One-step green synthesis of polypyrrole-Au nanocomposite and its application in myoglobin aptasensor

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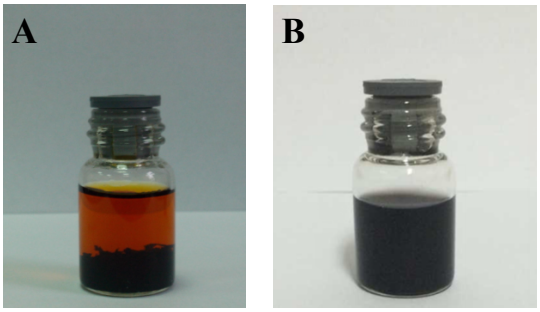

Fig. S1 Photograph of (A) PPy and (B) PPy-Au NC.

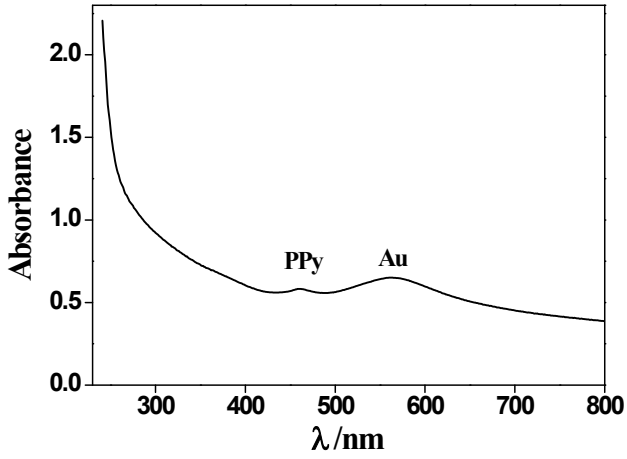

Fig. S2 UV-*vis* adsorption spectrum of PPy-Au NC.

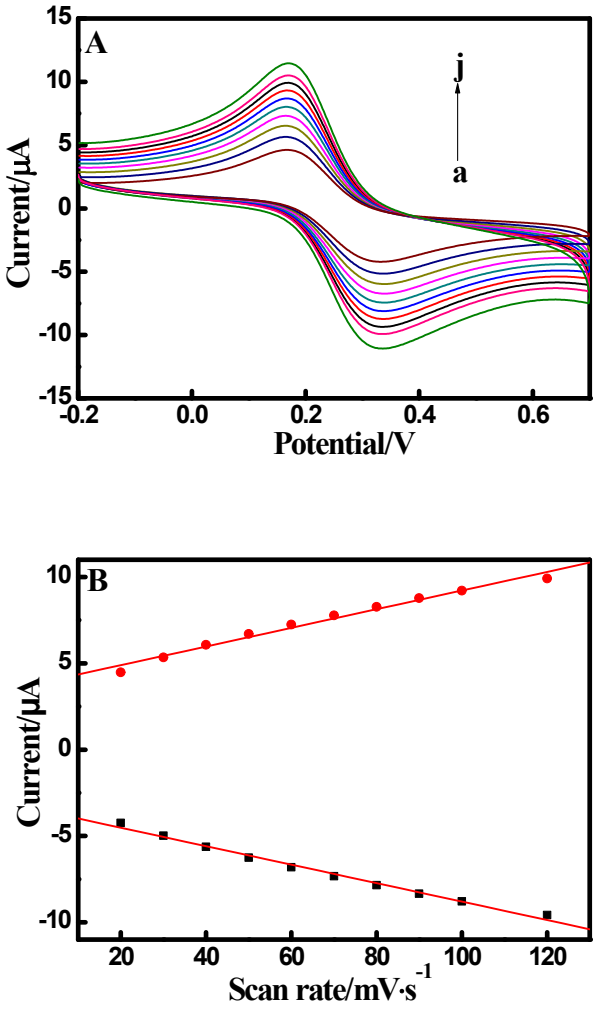

Fig. S3 (A) CVs of MBA/(PPy-Au)/APTES/GCE in 0.1 M PBS (pH=6.0) containing 10 mM $[Fe(CN)_6]^{3-/4-}$(1:1) solution and 0.1 M KCl at different scan rates. Scan rate (from a to j): 20, 30, 40, 50, 60, 70, 80, 90, 100, 120 $mV \cdot s^{-1}$. (B) Plots of anodic and cathodic peak current vs. scan rate.

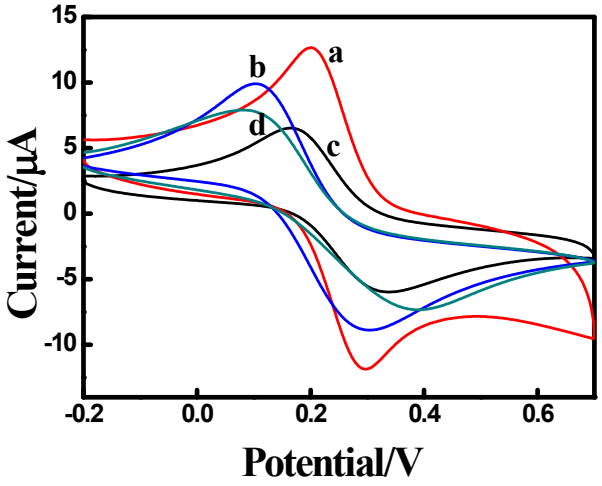

Fig. S4 (A) CVs of (a) MBA/(PPy-Au)/APTES/GCE, (b) MBA/Au/APTES/GCE, (c) Mb/MBA/(PPy-Au)/APTES/GCE and (d) Mb/MBA/Au/APTES/GCE in 0.1 M PBS (pH = 6.0) containing 10 mM $[Fe(CN)_6]^{3-/4-}$(1:1) solution and 0.1 M KCl.

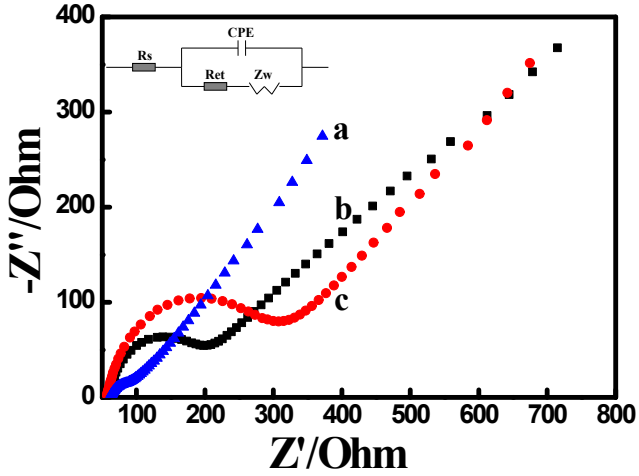

Fig. S5 Electrochemical impedance spectra of (a) (PPy-Au)/APTES/GCE, (b) MBA/(PPy-Au)/APTES/GCE and (c) Mb/MBA/(PPy-Au)/APTES/GCE recorded at the open circuit potential in 10 mM $[Fe(CN)_6]^{3-/4-}$(1:1) solution containing 0.1 M KCl. Inset is a schematic of the equivalent circuit.

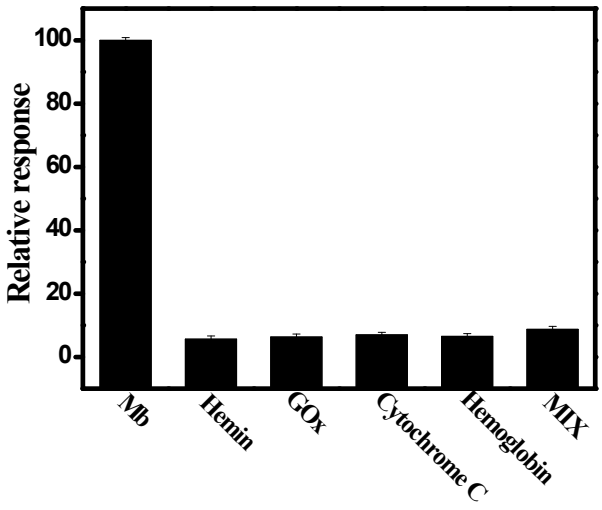

Fig. S6 Specificity of the assay for 0.05 $g \cdot L^{-1}$ Mb, four interfering substances and mixture of the four interferences, including hemin, GOx, cytochrome c and hemoglobin were 5 $g \cdot L^{-1}$.

Table S1. Comparison of analytical performance of aptasensor and other determination methods

Determination methods	Linear Range	Detection limit	R^2	Ref.
poly(HEMA-MATrp) nanofilm SPR sensor	0.1-1.0 $\mu g \cdot mL^{-1}$	87.6 $ng \cdot mL^{-1}$	0.98	45
MIP/Au-SPE biosensor	0.852-4.26 $\mu g \cdot mL^{-1}$	2.25 $\mu g \cdot mL^{-1}$	/	46
TiO_2 nanotubes sensor	0.001-0.1 $mg \cdot mL^{-1}$	1 $\mu g \cdot mL^{-1}$	/	47
SPR immunosensor	100-1700 $ng \cdot mL^{-1}$	/	>0.98	48
MBA/(PPy-Au)/ APTES/GCE	0.0001- 0.15 $g \cdot L^{-1}$	30.9 $ng \cdot mL^{-1}$	0.9931	This work

/ represents relevant data which were not provided in these references.

Table S2. Comparison of two methods obtained in practical samples.

Samples	muscle-1	muscle-2	muscle-3	muscle-4
Colorimetry ($\mu mol \cdot g^{-1}$)	1.59±0.18	1.40±0.25	0.25±0.31	2.12±0.41
Aptasensors ($\mu mol \cdot g^{-1}$)	1.48±0.02	1.05±0.08	0.17±0.05	1.75±0.03