A sensitive and simple competitive nanozyme-linked apta-sorbent assay for dual-mode detection of Ochratoxin A

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Fig. S1

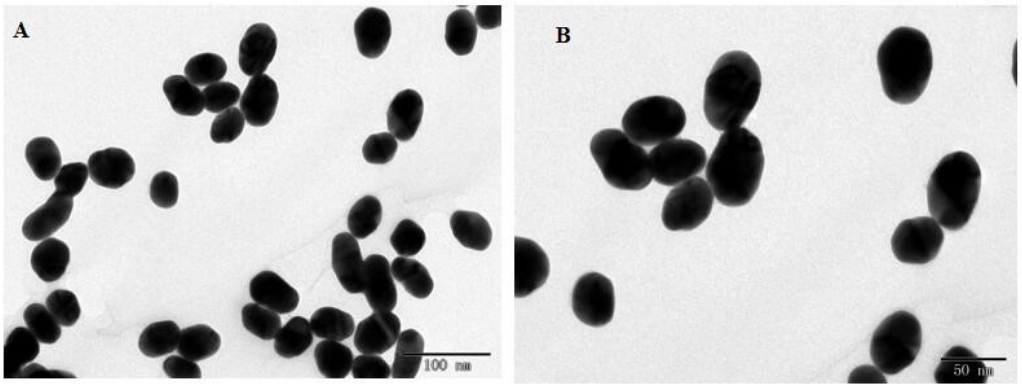

Fig. S1: (A) TEM of Au NPs, (B) zoom-in version of Au NPs

Fig. S2

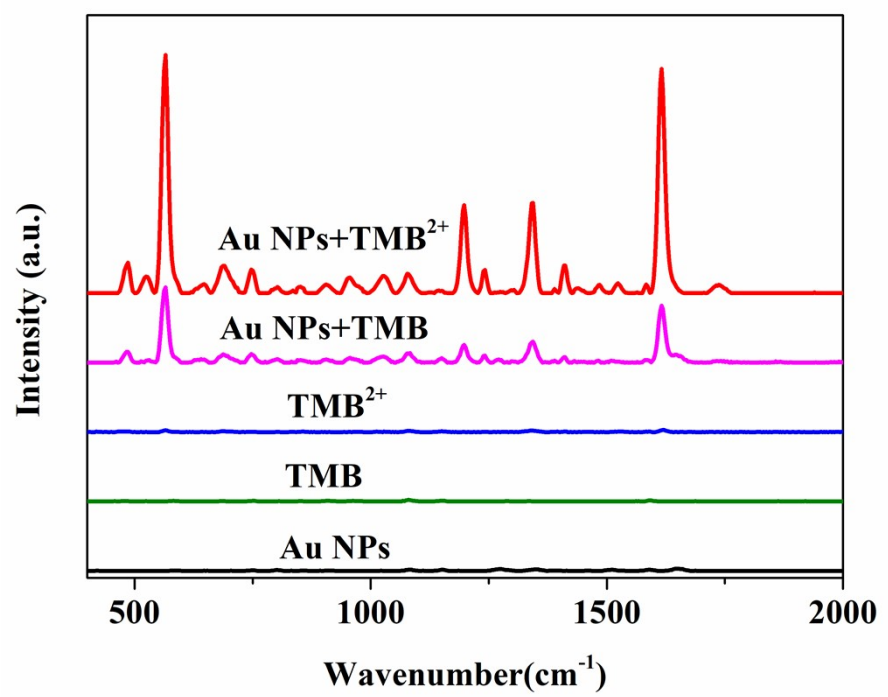

Fig. S2: AuNPs produced strong SERS signals corresponding to TMB^{2+}.

Fig. S3

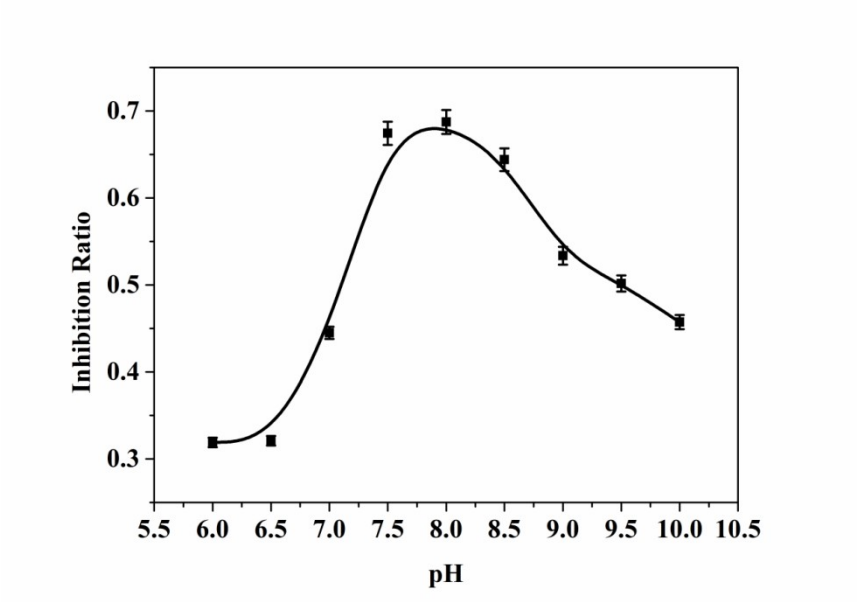

Figure S3:The effect of pH on the inhibition ratio of identification probe in the presence of 1 μM OTA.

Fig. S4

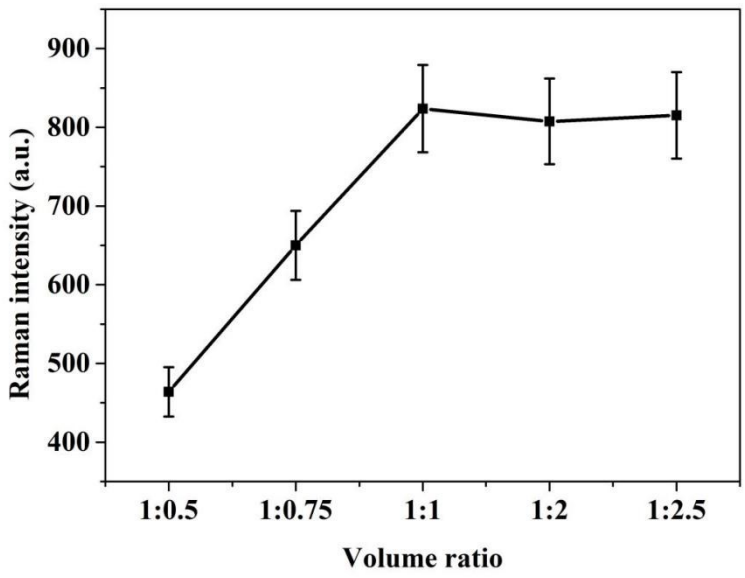

Fig. S4: The Raman intensity about optimum ratio of MNPs to Pd-Pt NRs.

4 Fabrication of Pd-Pt NRs

In standard synthesis, 50 mg of PVP, 50 mg of AA, and 7.0 ml of EG were mixed at room temperature and stirred magnetically for 10 minutes. Subsequently, 3 ml of EG, 38.2 mg of Na_2PdCl_4, 14.6 mg of K_2PtCl_4 and 75 mg of KBr were added with a pipet, and stirred at room temperature for 10 minutes. The mixture was heated in an oil bath at 160 °C for 1 hour, and then naturally cooled to room temperature. Collected by centrifugation at 55000 rpm, washed twice with acetone and twice with deionized water, and finally redispersed in 10 mL of water.

5 Fabrication of Au NPs

Typically, 1 mL of 1% $HAuCl_4 \cdot 3H_2O$ was added to 100 mL of deionized water and brought to boiling and refluxed. Then, 1 mL of freshly prepared 1% (w/v) aqueous trisodium citrate solution was added rapidly. 20 minutes later, the color of the solution changed from colorless to deep red. Afterwards, the solution was cooled down to room temperature with vigorous stirring and kept at 4 °C for further use.

6. HPLC-MS/MS method

HPLC-MS/MS method: Agilent Series 1200 liquid chromatograph (Agilent Technologies, Palo Alto, CA, USA), with an API2000 triple quadrupole mass spectrometer equipped with a turbo-ion spray ionization source (Applied Biosystem/MDS Sciex, Foster City, CA, USA).

The Mass spectrometry parameters wereas follows: scanning mode: positive ion scanning; detection mode: multiple reaction monitoring mode (MRM); ion source temperature: 300 °C; nebulizer pressure (Gas): 45 psi; spray voltage: 5.5 kV; the m/z ratio of OTA and the collision energy of ions are shown in Table S1.

The HPLC parameterswereas follows: chromatographic column: XBridge C18 column (150×3 mm, 2.7 um, Agilent, USA); mobile phase: 1% ammonium acetate and acetonitrile in ultra-pure water (A): acetonitrile (B) (90: 10 v/v); Elution procedure: isocratic elution; flow rate 300 μL/min; injection volume: 2 μL.

Table S1. m/z ratio and the ion collision energy of OTA

NO	Compound	Parent ion (m/z)	Product ion (m/z)	DP (V)	CE (V)
1	OTA	404	358*/239	90	20