

Supporting information

**Gold nanoparticle-based semi-quantitative and
quantitative ultrasensitive paper sensor for the
detection of twenty mycotoxins**

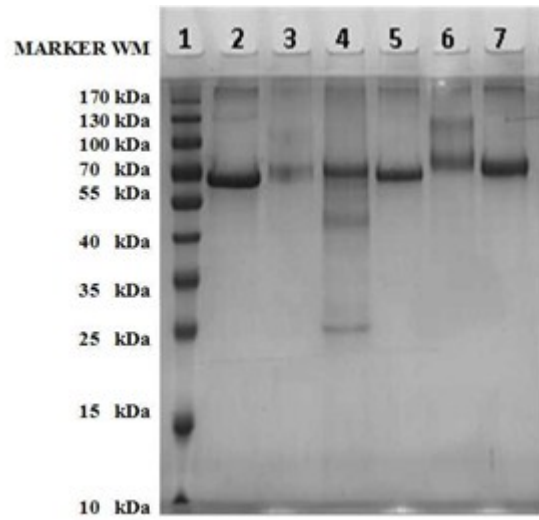


Figure S1. The SDS-PAGE image of five coating antigens. 1. MARKER; 2. BSA; 3. DON-BSA; 4. FB1-GA-BSA; 5. ZEA-CMO-BSA; 6. T-2-HS-BSA; 7. AFB1-CMO-BSA

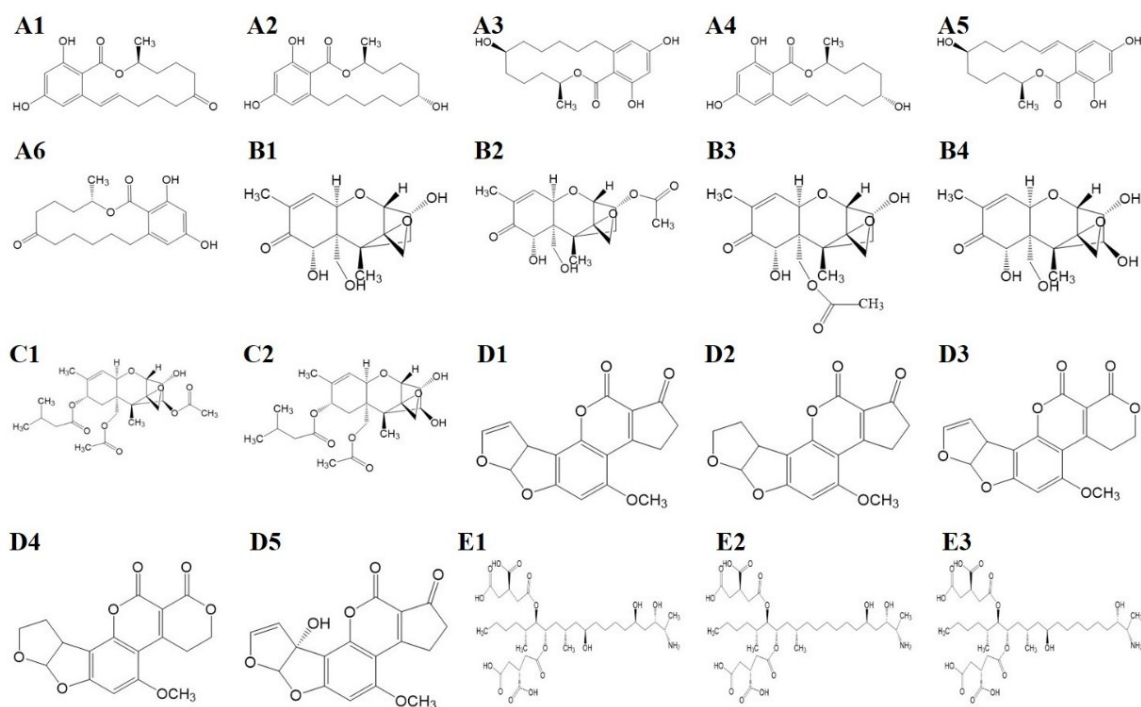


Figure S2. Chemical structures of different mycotoxins. (A1) ZEA; (A2) alpha-ZAL; (A3) beta-ZAL; (A4) alpha-ZOL; (A5) beta-ZOL; (A6) zearalanone; (B1) DON; (B2) 3-AC-DON; (B3) 15-AC-DON; (B4) NIV; (C1) T-2 Toxin; (C2) HT-2 Toxin; (D1) AFB1; (D2) AFB2; (D3) AFG1; (D4) AFG2; (D5) AFM1; (E1) FB1; (E2) FB2; (E3) FB3.

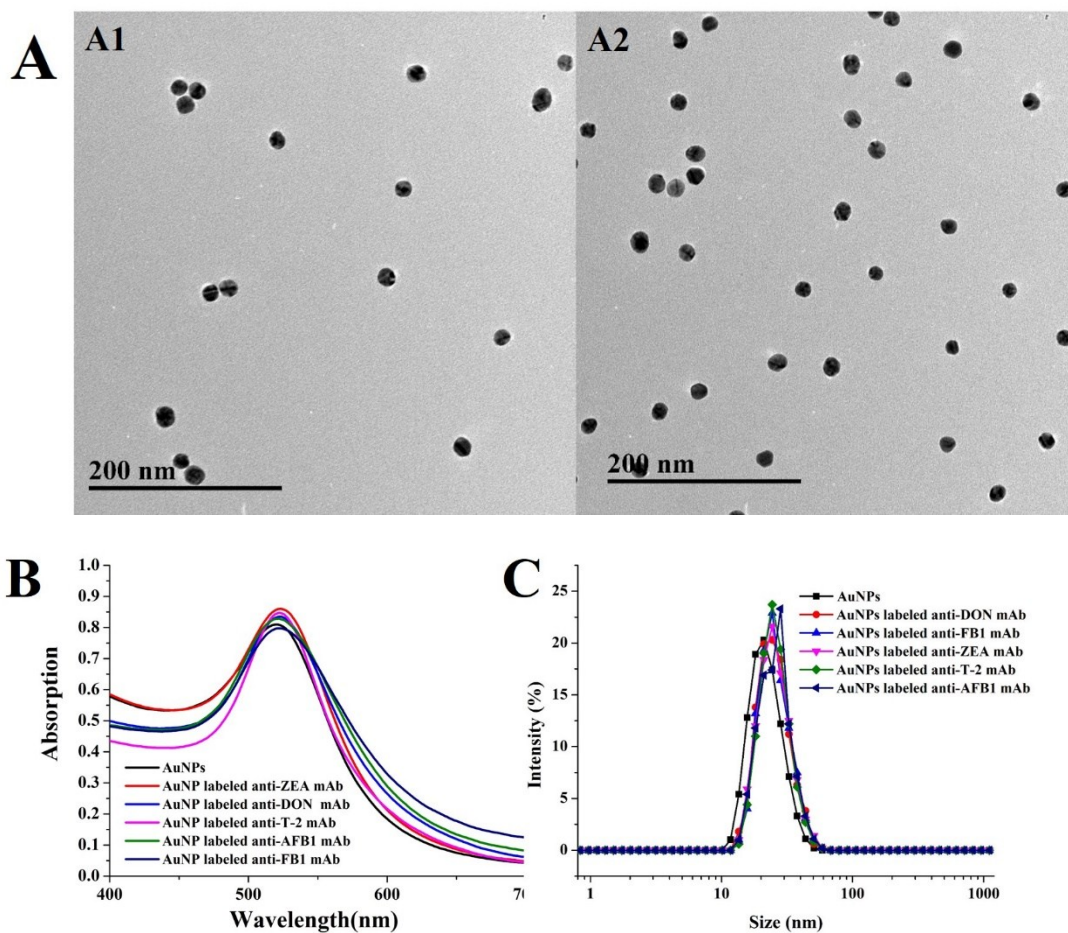


Figure S3. (A1) The TEM images of GNPs with diameter of 15 nm; (A2) The TEM images of GNP labeled anti-ZEA mAb; (B) UV-Vis spectra of the GNP labeled mAb. (C) The dynamic light scattering (DLS) diameter of the GNP labeled mAb.

Table S1. The conjugated ratio for each coating antigens.

Coating antigens	MW (Da)	Conjugated ratio
DON-BSA	77285	36.6
FB1-GA-BSA	76343	12.6
ZEA-CMO-BSA	74265	20.0
T-2-HS-BSA	82162	27.8
AFB1-CMO-BSA	78237	29.4

Table S2. The IC₅₀ values and CR values of each mAb determined by the Ic-ELISA method

Analytes	Analogue	IC ₅₀ (Ic-ELISA) (µg/kg)	CR (%)
ZEA	-	0.045	100%
	alpha-ZAL	0.080	56%
	beta-ZAL	0.058	78%
	alpha-ZOL	0.073	62%
	beta-ZOL	0.033	136%
	Zearalanone	0.033	136%
DON	-	2.8	100%
	3-AC-DON	0.58	483%
	15-AC-DON	7.5	37.3%
	NIV	35	8%
T-2	-	0.43	100%
	HT-2	1.5	29%
AFB1	-	0.013	100%
	AFB2	0.062	21%
	AFG1	0.082	16%
	AFG2	0.414	3.2%
	AFM1	0.031	42%
FB1	-	2.17	100%
	FB2	7.14	30.4%
	FB3	2.24	97%