Supporting Information

Aptamer induced multi-colored AuNCs-WS_2 "Turn on" FRET nano platform for dual-color simultaneous detection of aflatoxin B_1 and zearalenone

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Section 1

Sample preparation and measurement.

5 g of each grounded maize sample and NaCl was taken into 100 mL flask and extraction solution (CH_3OH + H_2O; 7:3 (v: v)) was added in the flask up to the mark. The above mixture was homogenized very well, stirred at 3000 rpm and extracted for 2 min. Subsequently, the supernatant solution was filtered with glass filter. Afterward, 10 ml filtrate was added into 40 mL water and filtered again until clear solution was obtained. The samples were used for standard addition and

recovery analysis. The standard solutions of AFB_1 and ZEN were pipetted into the ground maize specimens before the addition of extracting solution.

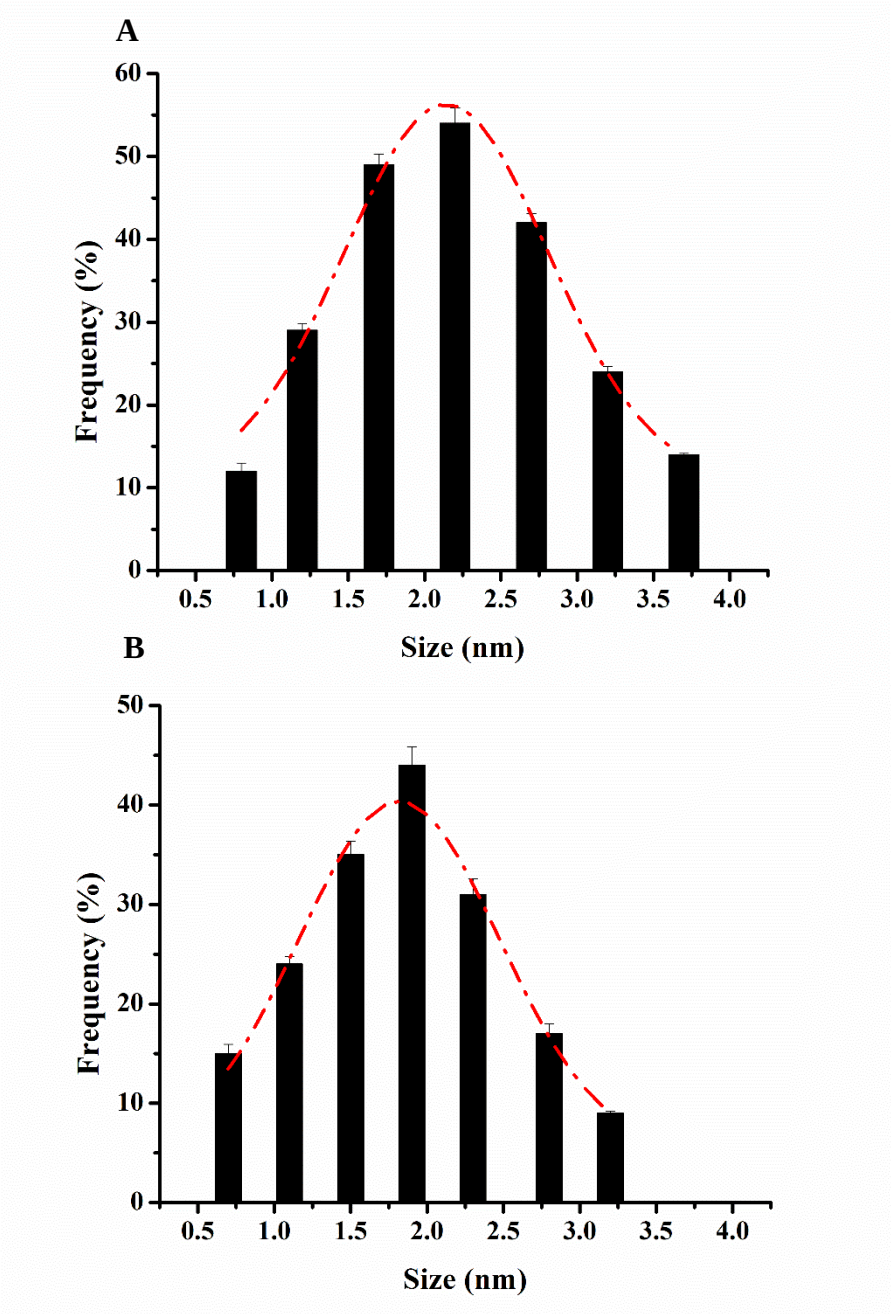


Fig. S1. Size distribution of Lp-AuNCs (A) and BSA-AuNCs (B).

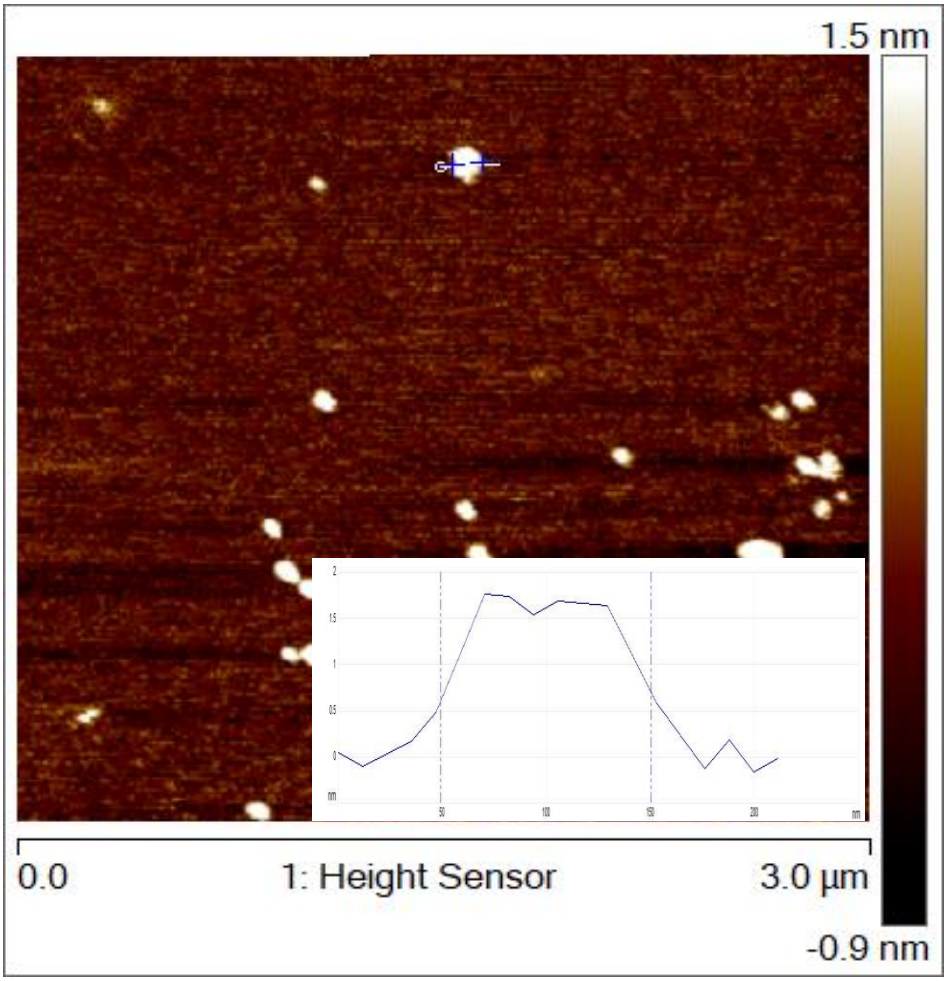


Fig. S2 AFM of WS_2

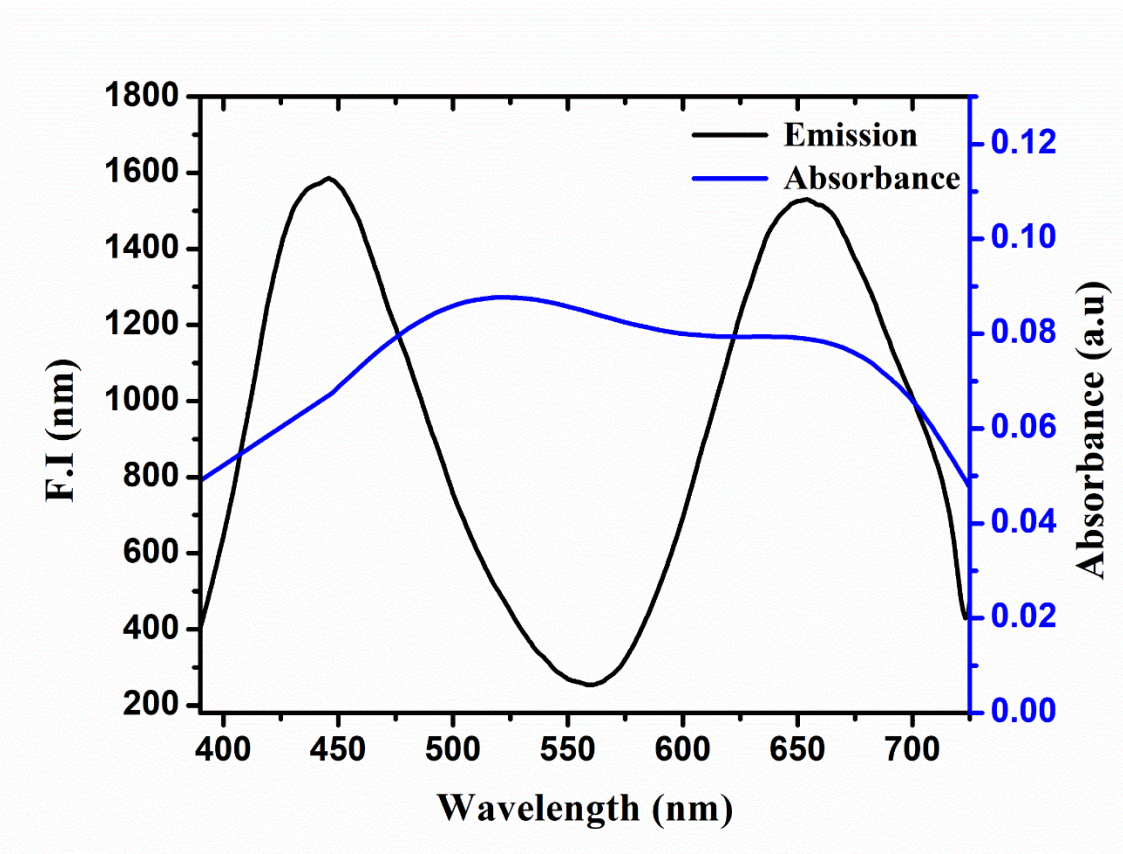


Fig. S3. Overlap between UV-vis spectra of WS_2 and emission spectra of AuNCs

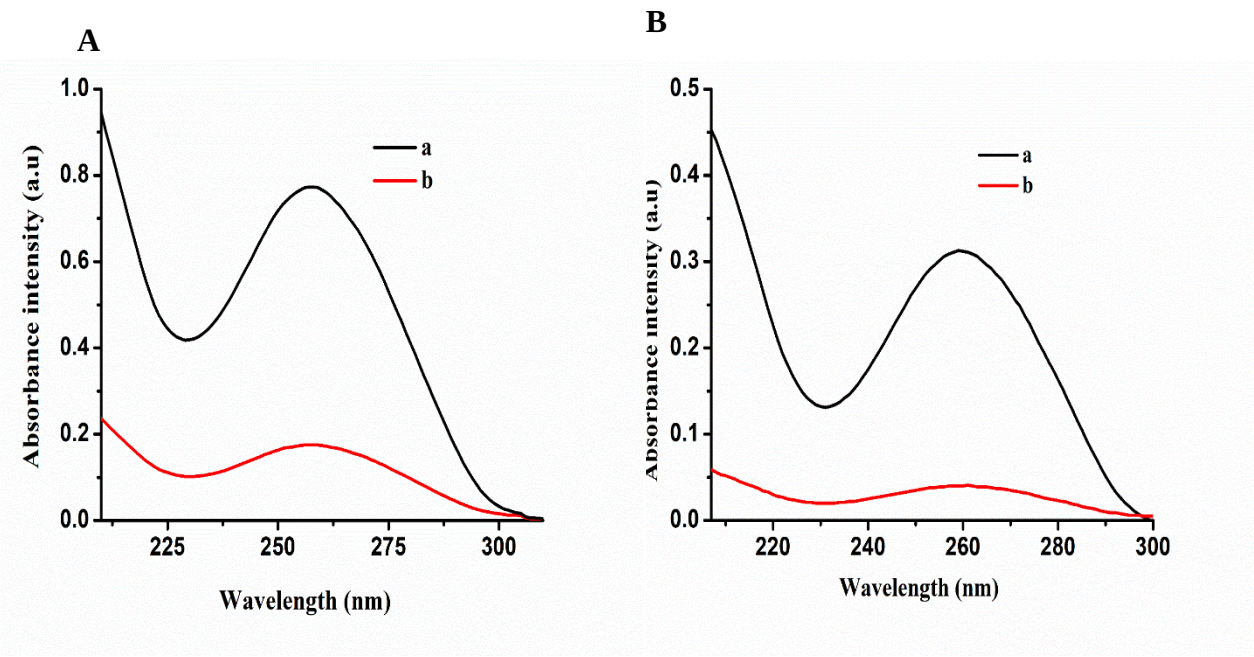


Fig. S4 UV-vis spectrum. (A) AFB_1 aptamer (curve a) and AFB_1 aptamer after conjugation with Lp-AuNCs in the filtrate solution (curve b, red line). (B) ZEN aptamer (curve a, black line) and ZEN aptamer after conjugation with BSA-AuNCs in the filtrate solution (curve b, red line).

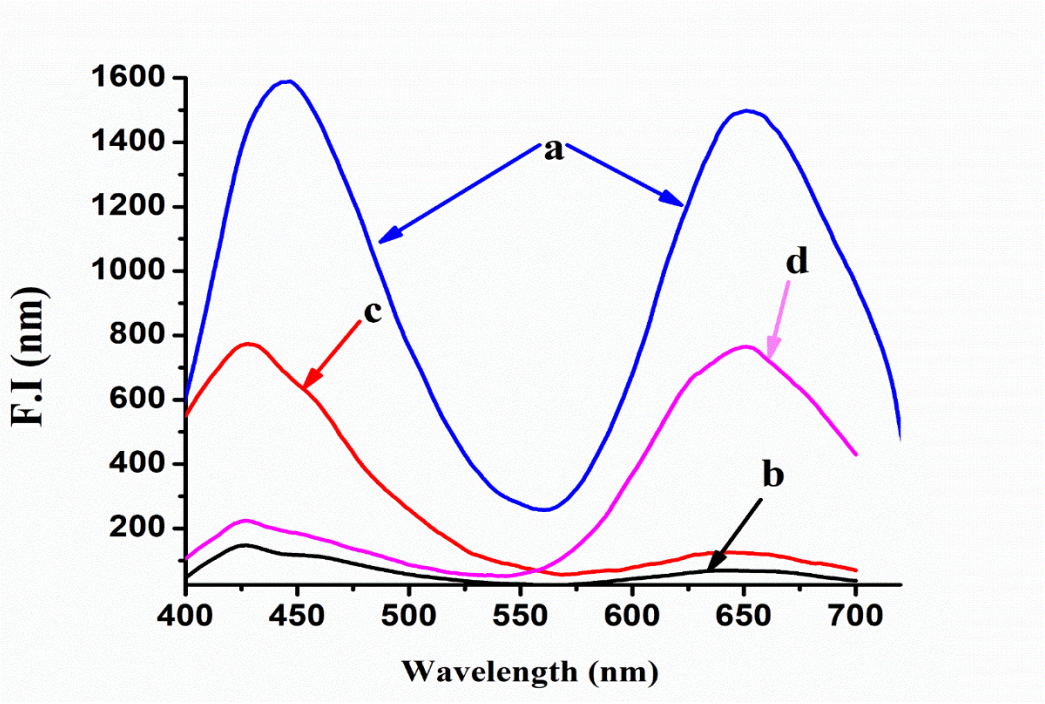
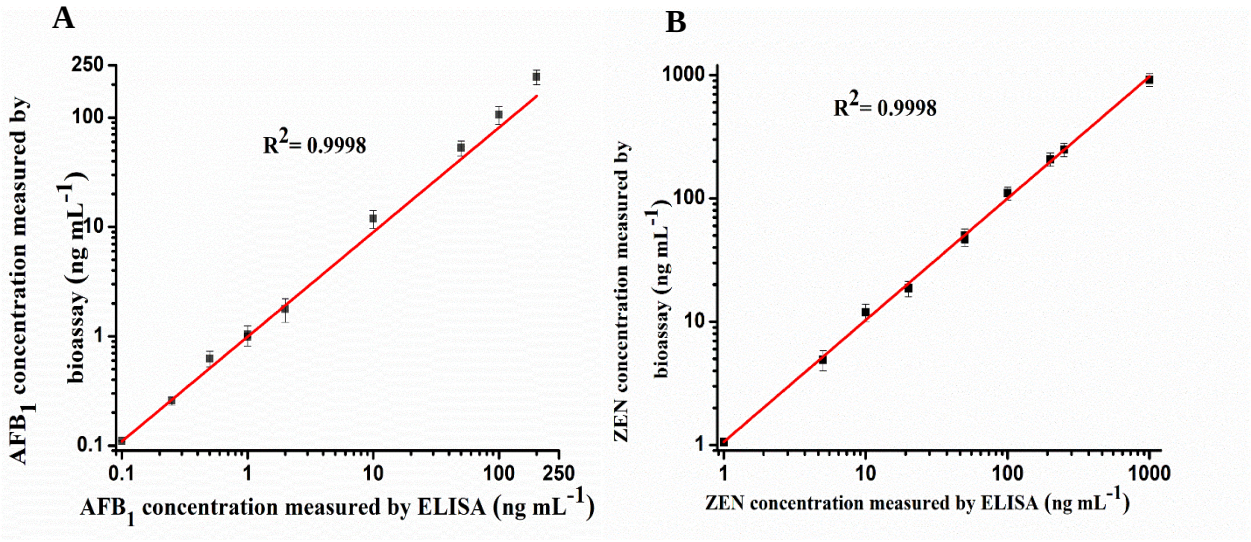


Fig. S5 Interference study. (a) Original emission spectra of AuNCs (Aptamer- Lp-AuNCs and BSA-AuNCs) (b) Quenched emission spectra of AuNCs with WS_2 (c) AuNCs +WS_2+ AFB_1 (d) AuNCs +WS_2+ ZEN



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40 **Fig. S6**. Relationship between developed and standard ELISA method for the detection AFB_1(A)

41 and ZEN (B).

Table. S1

Recovery results for the added standard AFB_1 and ZEN from maize samples

		Added concentration (ng mL^{-1})	background content (ng mL^{-1})	Detected concentration (ng mL^{-1})	Recovery (%)
Maize 1	AFB1	1	0.01 ± 0.001	0.99 ± 0.049	98
	ZEN		0.04 ± 0.003	1.06 ± 0.092	102
Maize 2	AFB1	10	0.03 ± 0.002	11.9 ± 1.924	118.73
	ZEN		0.92 ± 0.088	11.96 ± 2.893	110.4
Maize 3	AFB1	50	0.09 ± 0.005	52.79 ± 7.934	105.4
	ZEN		0.03 ± 0.001	47.21 ± 9.783	94.36
Maize 4	AFB1	100	3.06 ± 0.245	106.3 ± 12.79	103.19
	ZEN		2.67 ± 0.311	110.4 ± 14.06	107.73
Maize 5	AFB1	200	2.58 ± 0.392	235.5 ± 21.01	116.435
	ZEN		4.65 ± 0.413	207.8 ± 18.54	101.575