Electronic Supplementary Material

Design of fluorescence aptaswitch based on the aptamer modulated nano-surface impact on the fluorescence particles

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Supplementary Table 1: UV characterization of aptamer-TiO_2 complex in HBB, pH 7.4

Description	Absorbance
Aptamer (250 nM)	0.285
Aptamer + TiO_2 (25 µg/mL)	0.364
Aptamer + TiO_2 (300 µg/mL)	1.299

Supplementary Figure S1:

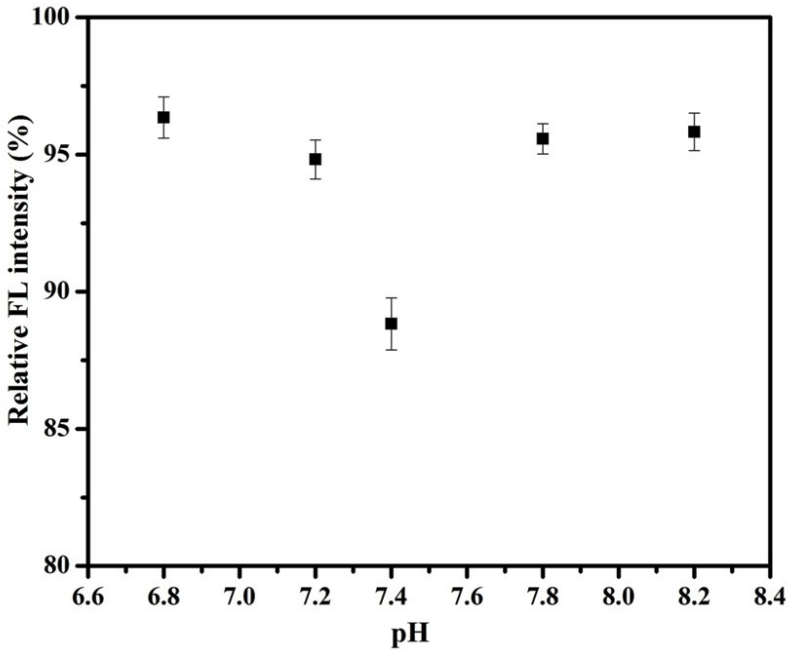

Fig. S1: Effect of pH on quenching efficiency of aptamer-TiO_2 complex at optimized concentration (n=3).

Supplementary Figure S2:

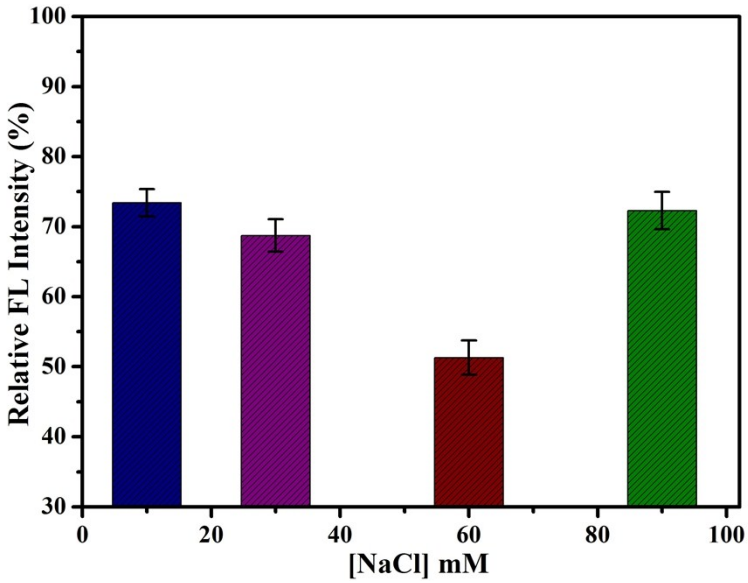

Fig. S2: Effect of NaCl concentration on quenching efficiency of aptamer-TiO_2 complex at optimized concentration (n=3).

Supplementary Figure S3:

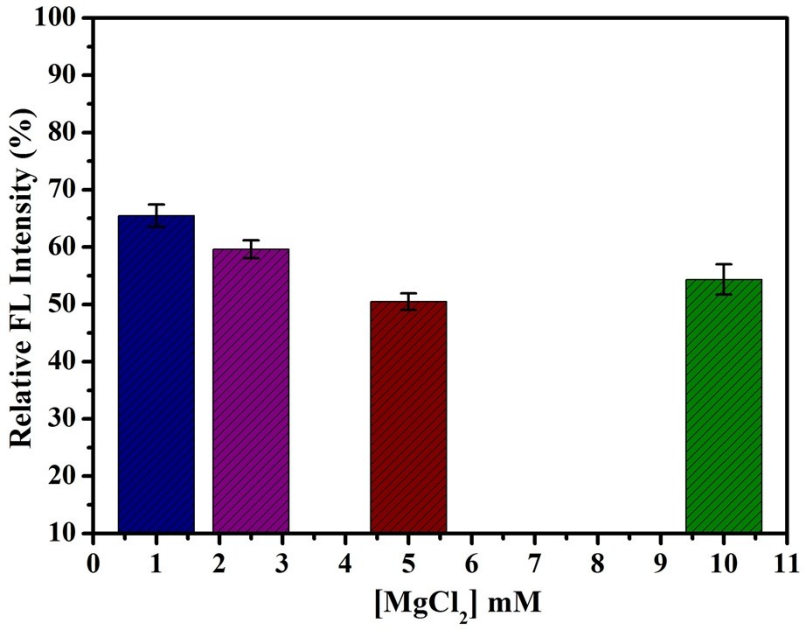

Fig. S3: Effect of $MgCl_2$ concentration on quenching efficiency of aptamer-TiO_2 complex at optimized concentration (n=3).

Supplementary Figure S4:

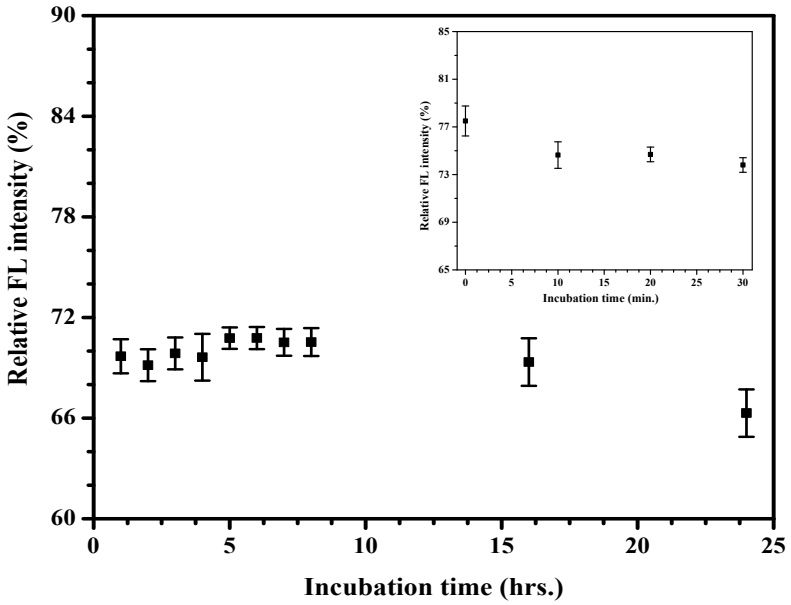

Fig. S4: Effect of incubation time on quenching efficiency of TiO_2 in HBB, pH 7.4 (n=3).

Supplementary Figure S5:

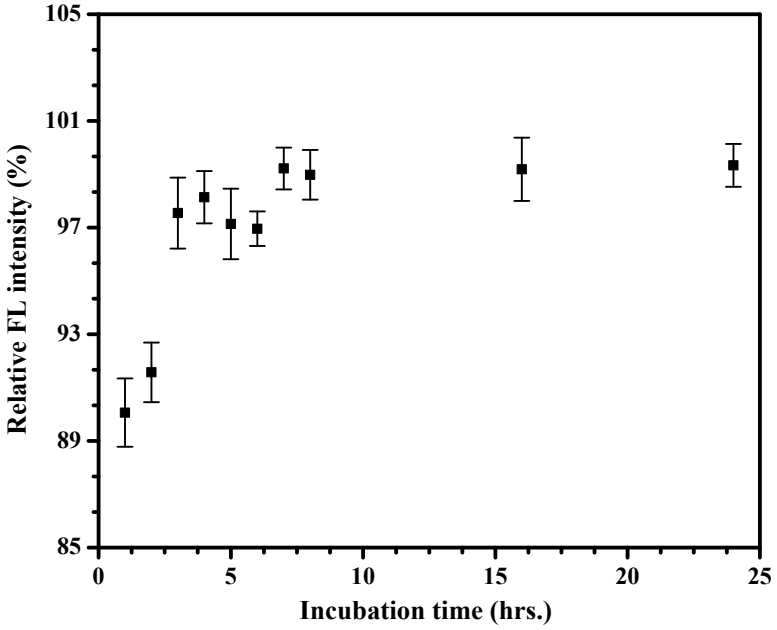

Fig. S5: Effect of incubation time on quenching efficiency of aptamer-TiO_2 complex in HBB, pH 7.4 (n=3).

Supplementary Table 2: Specificity performance of developed aptamer assay sensing platform against OTB

Specificity performance of fluorescence aptamer assay against other analogue											
Conc. [µM]	**OTA Recovered FL intensity (a.u.)**		**OTB Recovered FL intensity (a.u.)**		**% response of OTB (F_{OTB}/ F_{OTA} x 100)**	**Warfarin Recovered FL intensity (a.u.)**		**% response of OTB ($F_{warfarin}$ / F_{OTA} x 100)**	**NAP Recovered FL intensity (a.u.)**		**% response of OTB (F_{NAP}/ F_{OTA} x 100)**
	Mean ± S.D. (n=3)	**% R.S.D.**	**Mean ± S.D. (n=3)**	**% R.S.D.**		**Mean ± S.D. (n=3)**	**% R.S.D.**		**Mean ± S.D. (n=3)**	**% R.S.D.**	
0.25	13.93 ± 1.19	8.54	1.27 ± 0.10	9.00	9.12	0.08 ± **0.01**	12.5	0.57	0.06 ± **0.01**	16.67	0.43
1	49.96 ± 1.94	5.88	4.36 ± 0.31	7.11	8.72	0.74 ± **0.06**	8.11	1.48	0.53 ± **0.03**	5.66	1.06
5	206.9 ± 9.60	4.64	11.44 ± 1.06	9.26	5.53	1.05 ± **0.09**	8.57	0.51	0.89 ± **0.06**	6.74	0.43