

Supporting information

Aptamer Molecular Beacon Sensor for Rapid and Sensitive Detection of Ochratoxin A

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Table S1 Comparison of some aptamer-based methods for OTA

Strategy	Dynamic range	LOD	Analysis time	Ref.
A direct fluorescence anisotropy assay using tetramethylrhodamine-labeled aptamer.	3 nM-3 μ M	3 nM	40 min	[14]
A competitive aptamer fluorescence anisotropy assay.	2.5-1250 nM	2.5 nM	15 min	[15]
Label-free aptasensor using SYBR Gold and exonuclease I.	20-500 nM	16.5 nM	60 min	[29]
A FRET aptasensor.	0-160 nM	14 nM	30 min	[30]
FRET aptasensor using CD served as energy donor and Ag nanoparticles as energy donor.	10 nM-5 μ M	8.7 nM	<30 min	[31]
Aptamer-based colorimetric assay.	20-625 nM	20 nM	3 min	[16]
Aptasensor based on exonuclease-assisted recycling amplification.	5-200 nM	0.96 nM	40 min	[32]
Colorimetric aptasensor based on gold nanoparticle.	6.3-750 nM	5 nM	70 min	[17]
Aptamer fluorescent sensor based on photoinduced electron transfer between guanine and fluorophore.	3-300 nM	1.3 nM	30 min	[33]
Molecular aptamer beacon sensor	3.9 nM-500 nM	3.9 nM	15 min	This work

FRET: Forster resonance energy transfer, CD: nitrogen doped carbon dots.

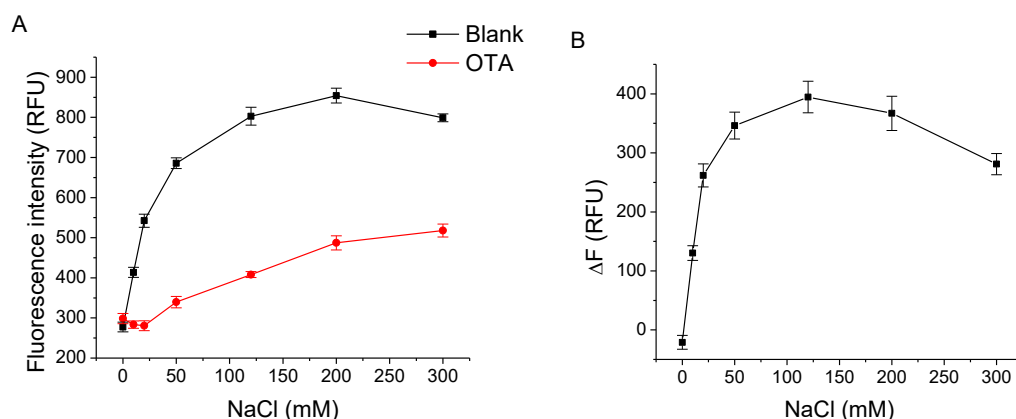


Figure S1. (A) Effects of NaCl concentration in buffer on the fluorescence response of OT-Bea-4bp (50 nM) in the absence and in the presence of 200 nM OTA. (B) Effects of NaCl concentration in the buffer on the fluorescence intensity change (ΔF , $F_{\text{Blank}} - F_{\text{OTA}}$) induced by OTA. Binding buffer contained 20 mM Tris-HCl (pH 7.5), 2 mM CaCl_2 , 0.1% Tween 20, and various concentrations of NaCl.

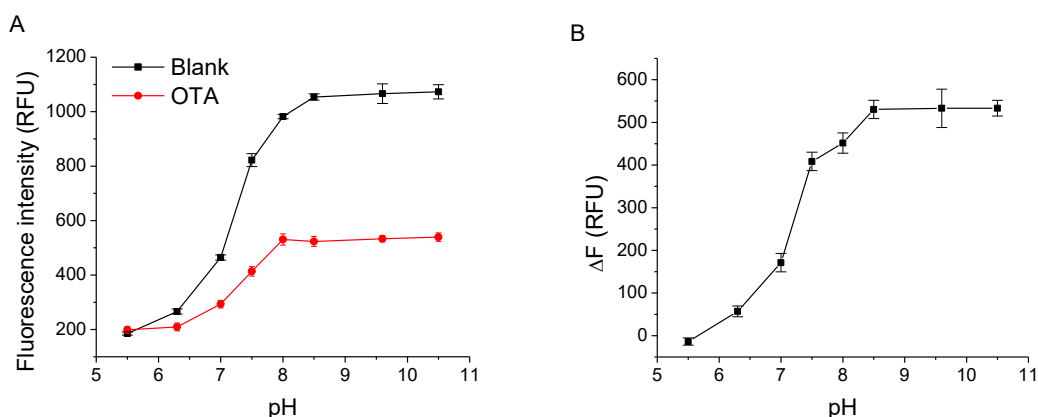


Figure S2. (A) Effects of buffer pH on the fluorescence response of 50 nM OT-Bea-4bp in the absence and in the presence of 200 nM OTA. (B) Effects of buffer pH on the fluorescence intensity change (ΔF , $F_{\text{Blank}} - F_{\text{OTA}}$) induced by OTA. Binding buffer was the solution containing 20 mM Tris-HCl, 2 mM CaCl_2 , 120 mM NaCl, and 0.1% Tween 20.

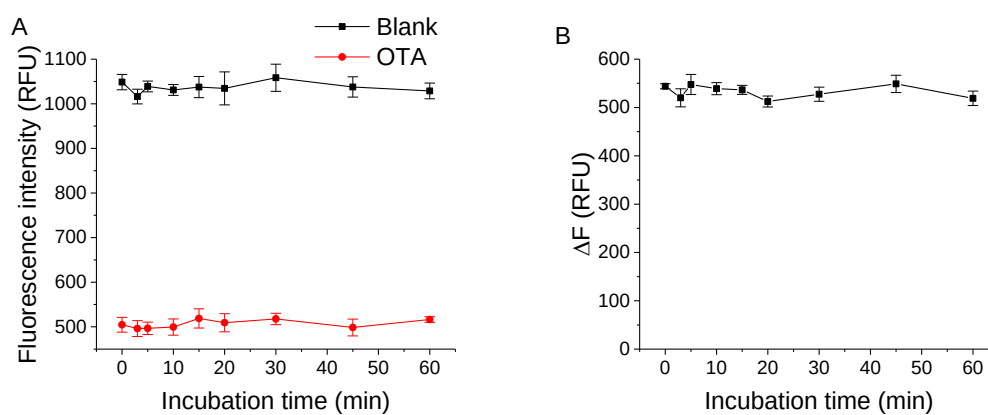


Figure S3. (A) Effects of incubation time on the fluorescence response of OT-Bea-4bp (50 nM) in the absence and in the presence of 200 nM OTA. (B) Effects of incubation time on the fluorescence intensity change (ΔF , $F_{\text{Blank}} - F_{\text{OTA}}$) induced by OTA. Binding buffer: 20 mM Tris-HCl (pH 8.5), 2 mM CaCl_2 , 120 mM NaCl, and 0.1% Tween 20.

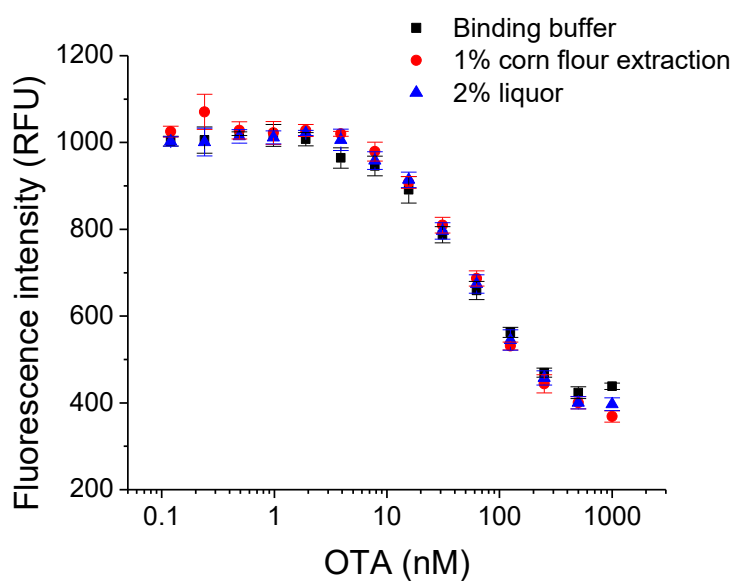


Figure S4. Detections of OTA spiked in 100-fold diluted corn flour extraction or 50-fold diluted liquor with OT-Bea-4bp.