

Supporting Information

for

New application of bimetallic Ag/Pt nanoplates in a colorimetric biosensor for specific detection of *E. coli* in water

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Additional figures and tables

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Figure S1: The predicted secondary structure of the sequence of specific aptamers of *E. coli*.



Figure S2: a) Comparison of peroxide activity of Ag NPL, Pt NPL, and Ag/Pt NPL after addition of TMB and H₂O₂. b) The peroxidase activity of Ag/Pt NPL after addition of TMB and H₂O₂.



а



b



Figure S3: Catalytic optimization analysis of Ag/Pt NPL in different concentrations of a) TMB (3, 5, 8, 10, 12 mM) (H₂O₂ = 1 M), b) H₂O₂ concentration (0.5, 1, 2, 3 M) (TMB = 10 µM). c) Stability of peroxide-like activity of NPL in different buffers.



Figure S4: The selectivity of the aptamer-NPL by the same concentration of different bacteria $(10^8 \text{ CFU} \cdot \text{mL}^{-1})$.

	Spiked	Measured		
Sample	concentration	concentration	Recovery (%)	RSD (n = 3, %)
	(CFU⋅mL ⁻¹)	(CFU⋅mL ⁻¹)		
Tap water	1 × 10 ⁷	0.95 × 10 ⁷	95	2.3
Top water	1 × 10 ⁵	0.04×10^{5}	04	27
Tap water	1 × 10	0.94 × 10	54	5.7
Tap water	1 × 10 ³	103 × 10 ³	103	1.9

Table S1: Analytical results of different concentration of *E. coli* in drinking water.