Supporting Information

Metal Coordination Polymer Induced Perylene Probe Excimer Fluorescence and Its Application in Acetylcholinesterase Sensing and Alpha-Fetoprotein Immunoassay

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Fig. S1. The emission intensity ratio (F_E/F_M value) of the excimer at 697 nm to the monomer at 553 nm in the presence of 1 mU/mL AChE, without AChE or Ag⁺ or thiocholine. Conditions: 10 μ M probe, 1 mU/mL AChE, 20 μ M acetylthiocholine chloride, 40 μ M Ag⁺, 5 mM Tris-HAc buffer solutions, pH 8.2, 37 °C, 60 min.



Fig. S2. Dynamic light scattering (DLS) analysis of the metal coordination polymer formed using different enzymatic reaction time. The reaction time was 1, 10, 20, 40, and 60 min, respectively.



Fig. S3. Changes in fluorescence spectra of the probe in the presence of AChE from 0 to 1.25 mU/mL. The AChE concentrations were 0, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.75, 0.85, 1.00, 1.125, and 1.25 mU/mL, respectively. Conditions: 10 μ M probe, 20 μ M acetylthiocholine chloride, 40 μ M Ag⁺, 5 mM Tris-HAc buffer solution, pH 8.2, 37 °C, 60 min.



Fig. S4. UV-Vis absorption spectra of DTNB in the absence (a) and presence (b) of 20 ng/mL AFP.



Fig. S5. The emission intensity ratio value (F_E/F_M) of the excimer at 697 nm to the monomer at 553 nm at different reaction conditions ("No" means without the addition of the component; "Yes" means in the presence of the component). Conditions: 20 ng/mL AFP, 10 μ M probe, 20 μ M acetylthiocholine chloride, 40 μ M Ag⁺, 5 mM Tris-HAc buffer solutions, pH 8.2, 37 °C, 60 min.

Method	Materials	Detection range (mU/mL)	Detection limit (mU/mL)	Ref.
Colorimetric assay	MnO ₂ -TMB	0.1-15	0.035	S1
	ATCI-TMB-H ₂ O ₂	0.05-5	0.03	S2
	PB NCs-H ₂ O ₂ -TMB	0.1-5.0	0.04	S 3
Photoelectrochemical assay	CdS QDs	0.01-1	0.01	S4
Fluorometric assay	Coronene probe	0.05-10	0.05	S5
	CQDs	14.2-121.8	4.25	S6
This work	Perylene probe	0.1-1.25	0.02	-

Table S1. Comparison of different methods for the detection of AChE.

Table S2. AChE recovery test in human urine samples.

Added (mU/mL)	Measured (mU/mL)	Recovery (%)	DTNB
0.20	0.19	95.0	0.21
1.00	1.03	103.0	1.04

References

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