Electronic Supplementary Material (ESI) for Analytical Methods.

Supplementary information

Facile fabrication of highly sensitive and non-label aptasensors based on antifouling amyloid-like protein aggregates

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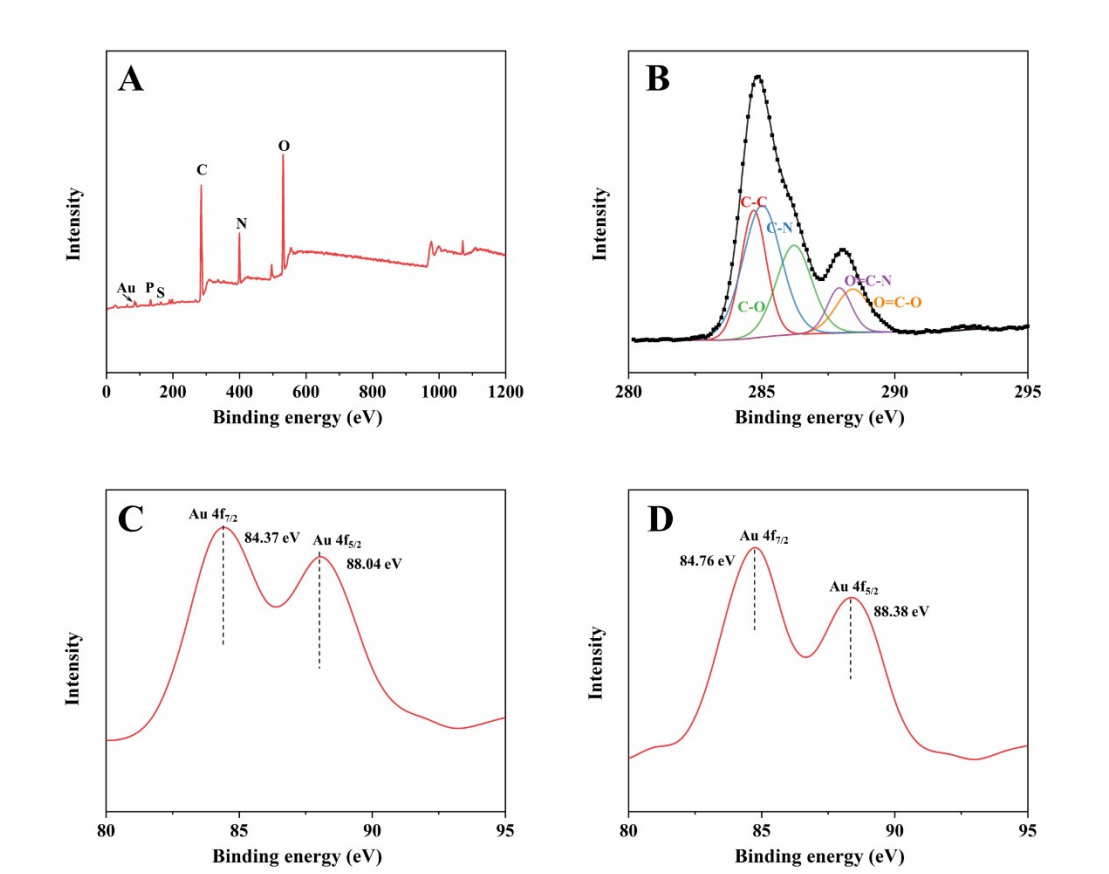

Fig. S1 XPS wide scan (A) and the corresponding high resolution C1s spectra (B) of the PTB-Au film. XPS Au 4f spectra of BSA-Au nanoclusters (C) and PTB-Au film (D), the binding energy of the C1s orbital was used as an internal reference.

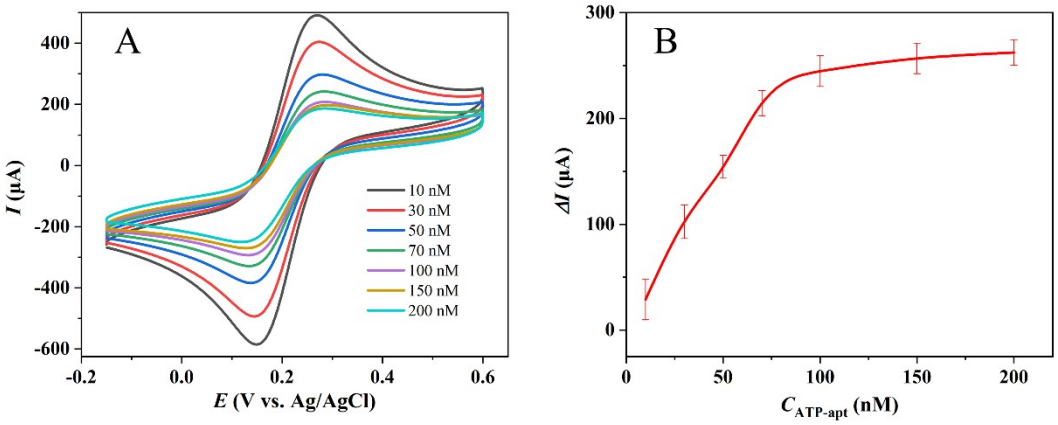

Fig. S2 Cyclic voltammograms (A) and the change of anodic current (B) of Apt/PTB-Au/GR/ITO electrodes fabricated with ATP aptamer of varied concentrations.

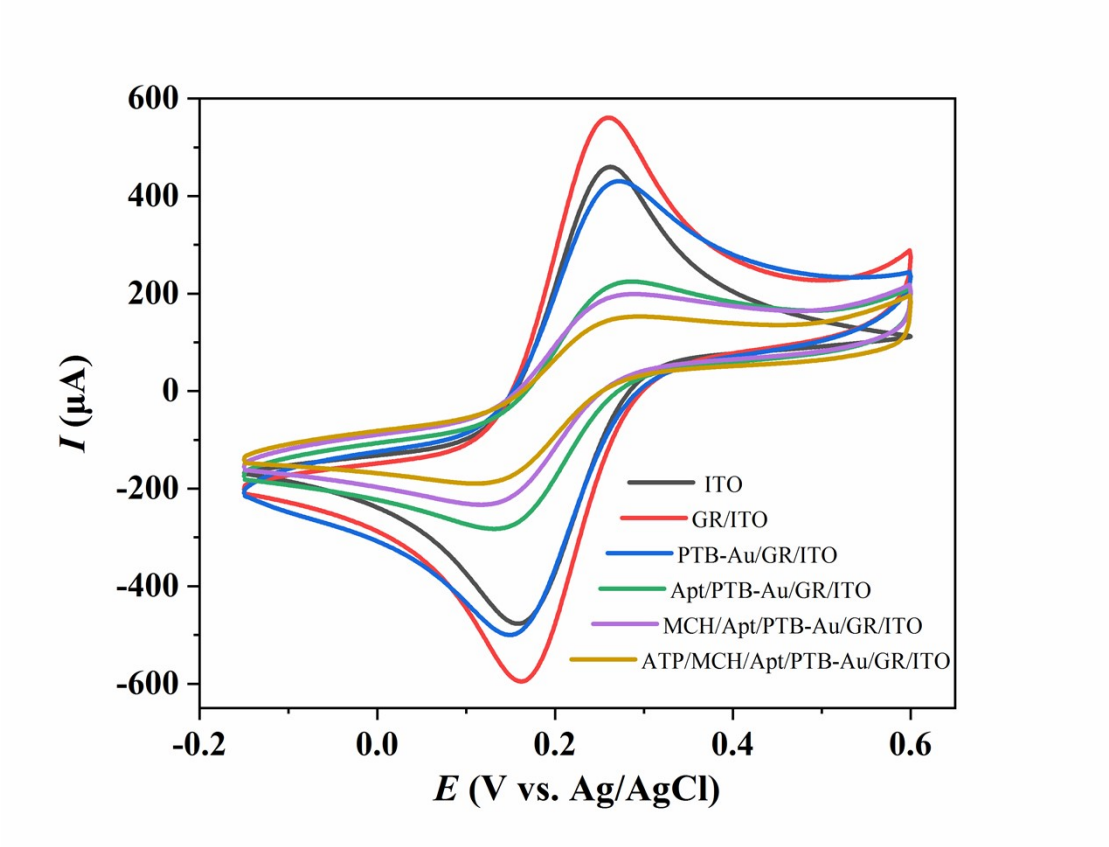

Fig. S3 Cyclic voltammograms of ITO, GR/ITO, PTB-Au/GR/ITO, Apt/PTB-Au/GR/ITO, MCH/Apt/PTB-Au/GR/ITO, and ATP/MCH/Apt/PTB-Au/GR/ITO electrodes.

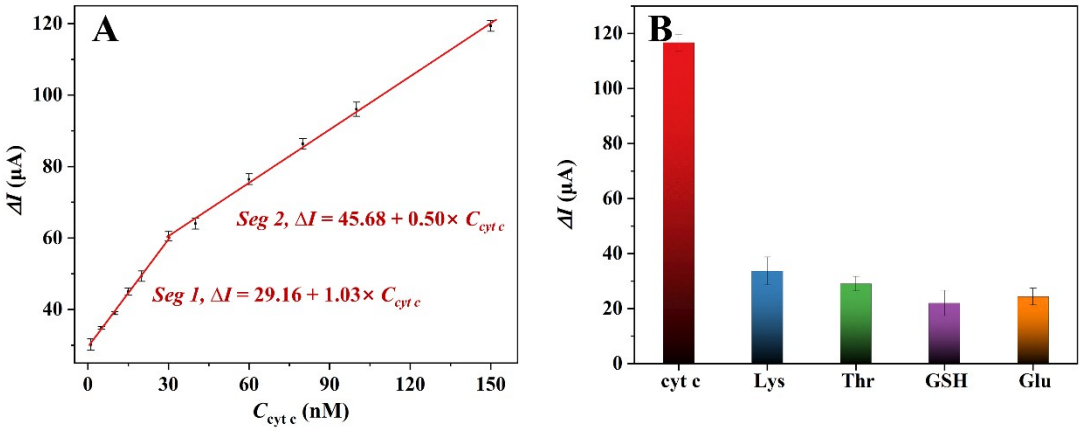

Fig. S4 Calibration curves of aptasensors based on PTB-Au antifouling film for cyt c detection (A), and the current changes of the aptasensor towards cyt c and other interferences, the concentration of all substances was 150 nM (B).

Table S1 Comparison between the presented and other reported methods for ATP Detection.

Methods	**Materials for signal amplification**	**Linear range (nM)**	**LOD (nM)**	**Ref.**
Colorimetric	ZIF-90/ MoS_2 nanozyme	100- 100 000	47	[1]
Fluorometric	Gold nanobipyramids	200- 10 000	61.29	[2]
Photoelectrochemical	CuO nanoflowers	5- 3 000	2.1	[3]
Electrochemical	Carbon-fiber	1000- 10 000	124	[4]
Electrochemical	Electrochromic WO_3	2- 100	0.51	[5]
Electrochemical	PTB-Au antifouling film	1- 150	0.26	This work

Table S2 Comparison between the presented and other reported methods for cyt c Detection.

Methods	**Materials for signal amplification**	**Linear range (nM)**	**LOD (nM)**	**Ref.**
Colorimetric	β-$Co(OH)_2$ nanoplates	50- 1000 000	1	[6]
Fluorometric	QDs@SiO_2@EMSiO_2	0.4- 200	0.15	[7]
Fluorometric	Ag_2S quantum dots	2- 150	1.7	[8]
Photoelectrochemical	CdS/Au/TiO2 nanoarray	0.005- 100	0.003	[9]
Electrochemical	Polypyrrole	0.01- 1	0.005	[10]
Electrochemical	PTB-Au antifouling film	1- 150	0.64	This work

Table S3 Recovery tests for ATP and cyt c detection in bacterial samples (n = 6).

Targets	Culture supernatant	Added (nM)	Found (nM)	Recovery (%)	*RSD* (%)
ATP	*D. caledoiensis*	5.00	5.09	101.80	2.65
	D. caledoiensis	50.00	48.53	97.06	1.17
	D. caledoiensis	100.00	99.22	99.22	0.39
	E. coli	5.00	5.12	102.40	1.90
	E. coli	50.00	48.37	96.74	1.04
	E. coli	100.00	99.81	99.81	0.52
Cyt c	*D. caledoiensis*	5.00	5.28	105.60	2.51
	D. caledoiensis	50.00	48.46	96.92	0.45
	D. caledoiensis	100.00	102.44	102.44	0.44
	E. coli	5.00	5.18	103.60	1.98
	E. coli	50.00	48.70	97.40	1.68
	E. coli	100.00	106.43	106.43	0.73

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