Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Three-dimensional porous microarray of gold modified electrode for ultrasensitive and simultaneous assay of various cancer biomarkers

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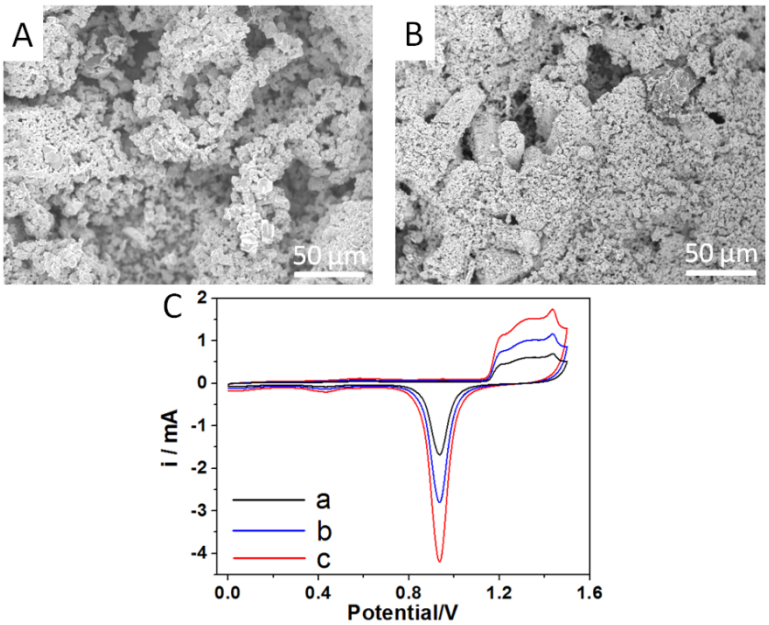

Fig. S1 FESEM images of the fabricated gold structures with different electrodeposition charge. (A) 0.2 C, (B) 1.2 C. (C) Cyclic voltammograms of the fabricated gold structures with different electrodeposition charge in 0.1 M H_2SO_4 solution, (a) 0.2 C, (b) 1.2 C and (c) 0.6 C.

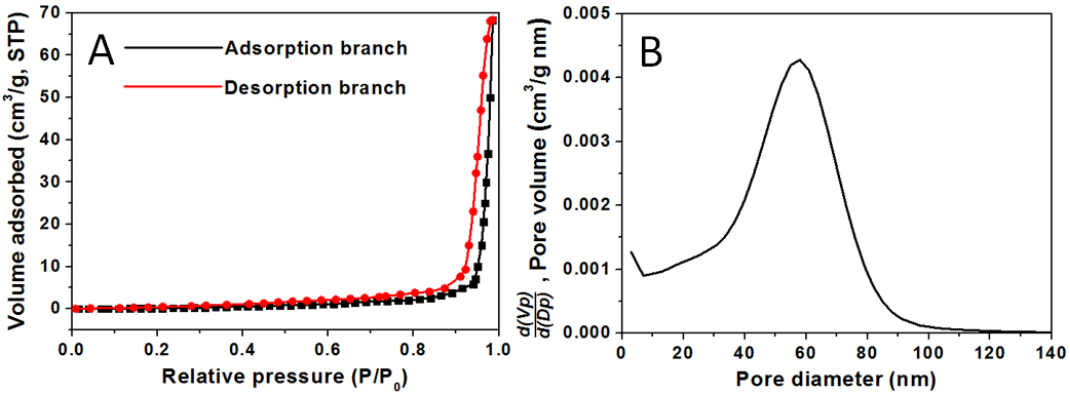

Fig. S2 (A) N_2 adsorption-desorption isotherms and (B) pore size distribution of the fabricated PMGE.

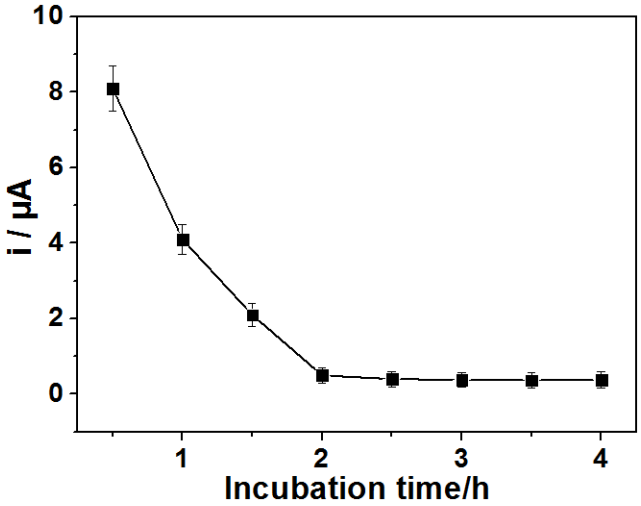

Fig. S3 The signal responses of the Rp-A when the capture probe was hybridized with the Apt-A for 0.5 h, 1 h, 1.5 h, 2 h, 2.5 h, 3 h, 3.5 h and 4 h respectively (five independent experiments were implemented here).

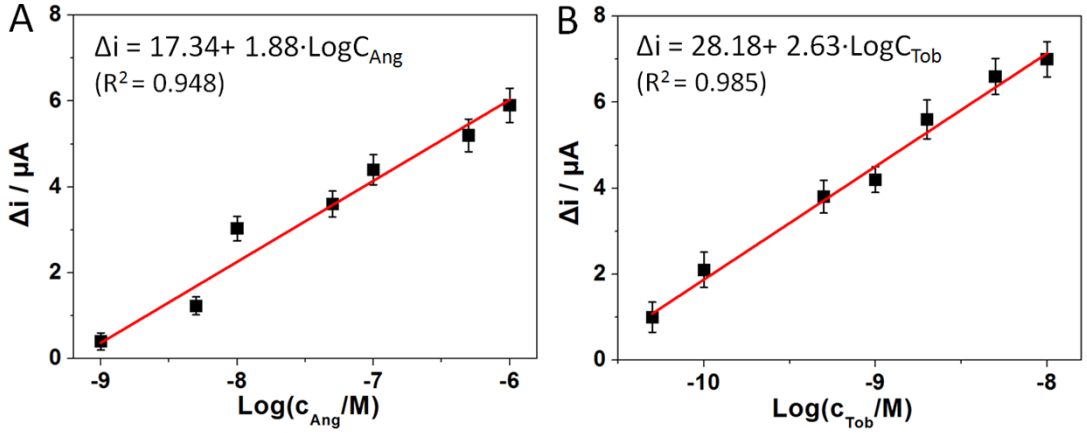

Fig. S4 (A), (B) Calibration curves for the simultaneous determination of Ang and Tob based on bare gold slice. The detection limit of 0.5 nM for Ang with a linear range from 1 nM to 1 μM and a detection limit of 30 pM for Tob with a linear range from 50 pM to 10 nM were achieved respectively (S/N=3). Five independent experiments were implemented.

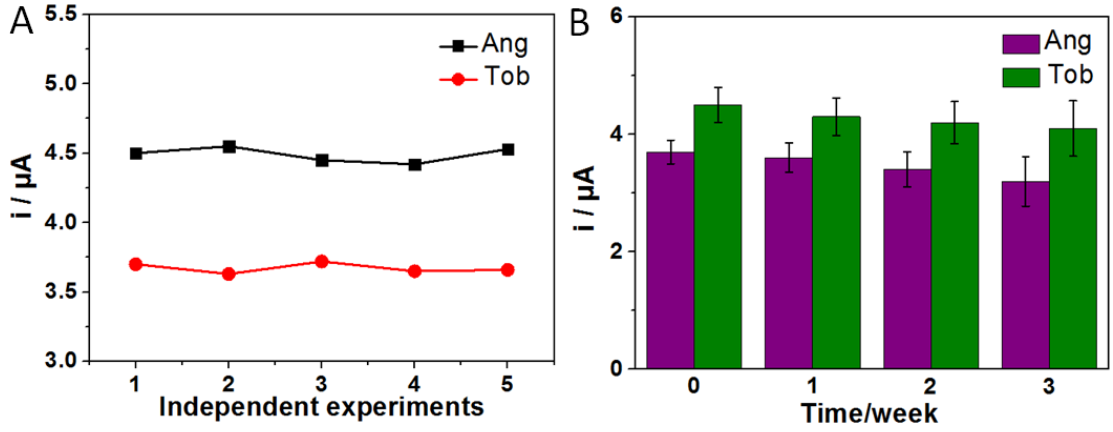

Fig. S5 (A) The reproducibility and (B) stability tests of the fabricated aptasensors (five independent experiments were implemented here).

Table S1 Performance comparisons of different aptasensors.

Analyte	Linear range	Detection limit	Reference
Ang	Not konwn	1 nM	5
Tob	1-50 pM	0.2 pM	28
Ang	0.5-40 nM	0.2 nM	31
Ang	0.01-30 nM	1 pM	47
Tob	Not konwn	6.4 nM	48
Tob	1 pM-10 μM	0.143 pM	49
Tob	7.3 pM-7.3 nM	4.6 pM	50
Ang	0.2 pM-10 nM	0.07 pM	This work
Tob	50 fM-5 nM	20 fM	This work

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Table S2 Assay results of Ang and Tob in human serum sample. [1]

Samples		Added	Founded	Recovery (%)	RSD (%)
1	Ang(pM)	10.0	9.76	97.6	3.8
	Tob (pM)	1.00	1.01	101	3.2
2	Ang(pM)	50.0	49.5	99.0	3.6
	Tob (pM)	5.00	4.89	97.8	3.1
3	Ang(nM)	0.20	0.19	95.0	3.1
	Tob (pM)	10.0	9.98	99.8	2.7
4	Ang(nM)	1.00	1.01	101	2.9
	Tob (nM)	0.50	0.49	98.0	3.2
5	Ang(nM)	5.00	4.97	99.4	3.9
	Tob (nM)	1.00	0.98	98.0	3.1

[1] The background signals arising from the blank serum were deducted in the quantitative assay.