Supporting Information

Microcantilever array biosensor for simultaneous detection of carcinoembryonic antigens and alpha-fetoprotein based on real-time monitoring of the profile of cantilever

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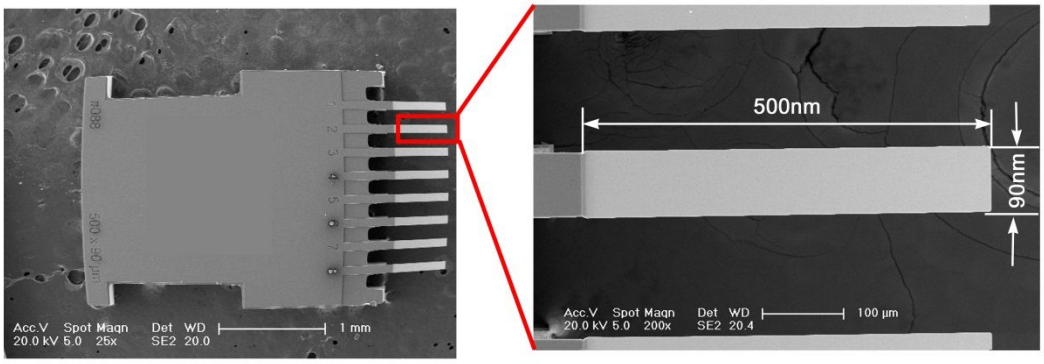

Fig. S1 The SEM image of microcantilever array used in experiment.

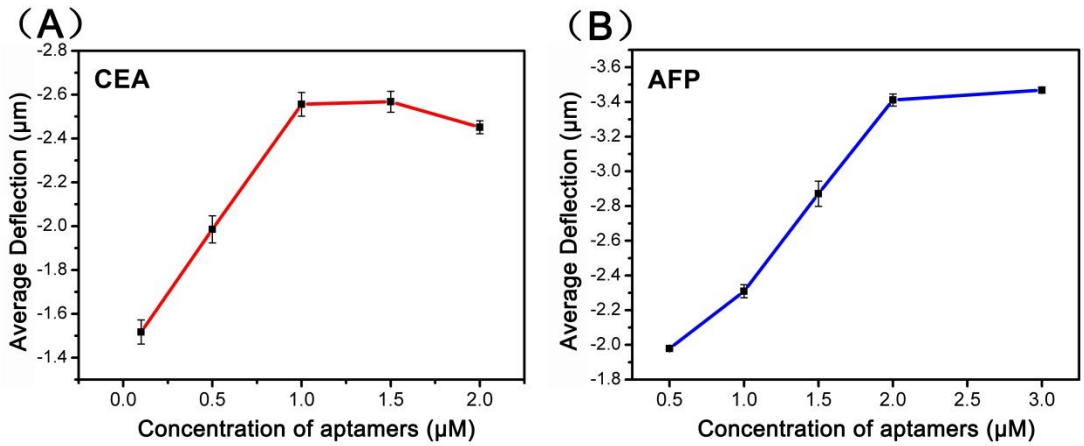

Fig. S2 Optimal experiments for aptamer concentration of CEA (A) and AFP (B)

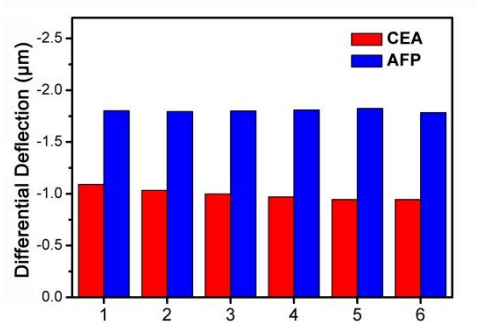

Fig. S3 The signal stability of the microcantilever array biosensor for detecting CEA and AFP under consecutive measurment for 6 times

Table S1 Comparison of the performance of other sensors for detection CEA and AFP

Analyte	Methods	Linear range	Detection limit	References
CEA	Multicolor quantum dots based immunochromatographic test strip	0-150 ng/mL	2 ng/mL	[1]
	Potential-resolved electrochemiluminescence immunoassay using dendritic nanoclusters and Fe_3O_4@SiO_2 nanoparticles	0.25 fg/mL-20 pg/mL	0.10 fg/mL	[2]
	Porous platinum nanoparticles and PdPt nanocages for use in an ultrasensitive immunoelectrode	0.05-200 ng/mL	1.4 pg/mL	[3]
	FRET-based aptasensor	0.5-120 ng/mL	0.21 ng/mL	[4]
AFP	Multicolor quantum dots based immunochromatographic test strip	0-150 ng/mL	3 ng/mL	[1]
	Potential-resolved electrochemiluminescence immunoassay using dendritic nanoclusters and Fe_3O_4@SiO_2 nanoparticles	0.25 fg/mL-20 pg/mL	0.10 fg/mL	[2]
	Porous platinum nanoparticles and PdPt nanocages for use in an ultrasensitive immunoelectrode	0.03-100 ng/mL	1 pg/mL	[3]
	FRET-based aptasensor	0.5-60 ng mL	0.16 ng/mL	[4]

Table S2 Analytical results of CEA and AFP in 10% serum samples

Added biomarker (ng/mL)	Detection biomarker (ng/mL)		Recovery%	
CEA/AFP	CEA	AFP	CEA	AFP
50	57.98	53.09	116%	106%
100	112.7	113.5	113%	113%
500	593.2	502.9	118%	101%

Reference

1. Wang, C.; Hou, F.; Ma, Y. Simultaneous quantitative detection of multiple tumor markers with a rapid and sensitive multicolor quantum dots based immunochromatographic test strip. *Biosens. Bioelectron.* **2015,** *68*, 156-162.
2. Babamiri, B.; Hallaj, R.; Salimi, A.; Akhtari, K. Potential-resolved electrochemiluminescence immunoassay for simultaneous determination of CEA and AFP tumor markers using dendritic nanoclusters and Fe_3O_4@SiO_2 nanoparticles. *Microchim. Acta* **2017,** *184*, 3613-3623.
3. Liu, N.; Feng, F.; Liu, Z.; Ma, Z. Porous platinum nanoparticles and PdPt nanocages for use in an ultrasensitive immunoelectrode for the simultaneous determination of the tumor markers CEA and AFP. *Microchim. Acta* **2015,** *182*, 1143-1151.
4. Xu, S.; Feng, X.; Gao, T.; Liu, G.; Mao, Y.; Lin, J.; Yu, X.; Luo, X. Aptamer induced multicoloured Au NCs-MoS2 “switch on” fluorescence resonance energy transfer biosensor for dual color simultaneous detection of multiple tumor markers by single wavelength excitation. *Anal. Chim. Acta* **2017,** *983*, 173-180.