

# **A label-free electrochemical sensor for ultrasensitive microRNA-21 analysis based on poly(L-cysteine)/MoS<sub>2</sub> sensing interface**

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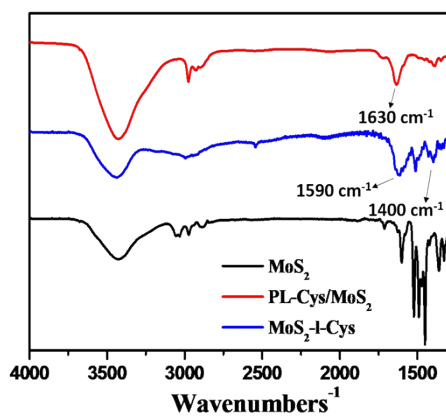


Fig. S1 Infrared spectra of MoS<sub>2</sub>, PL-Cys/MoS<sub>2</sub> and MoS<sub>2</sub>-l-Cys.

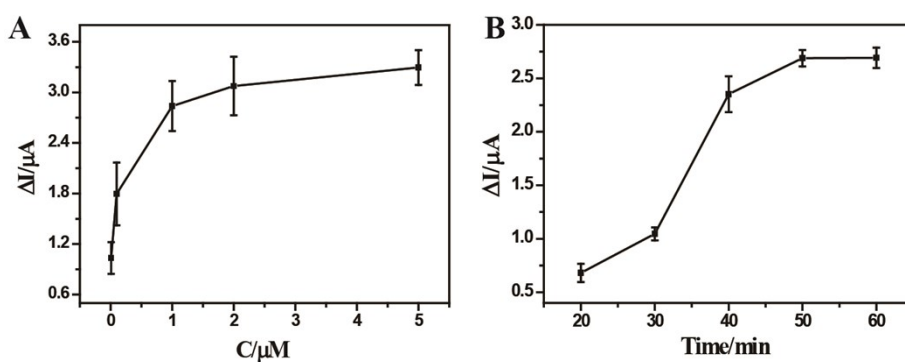


Fig. S2 Influence of probe DNA concentration on detection performances of sensor. (B) Effect of incubation time of probe DNA on detection performance.

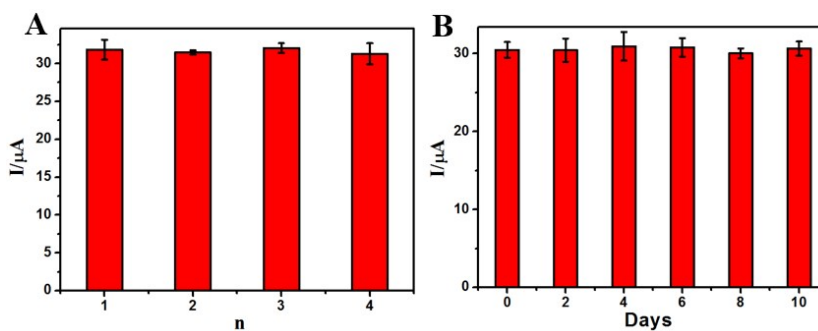


Fig. S3 (A) DPV responses of this sensor for reproducibility study by using four different independently electrodes. (B) The storage stability of this sensor.

**Table S1** Sequences for oligonucleotides used in this work.

Oligonucleotide	Sequence (5' to 3')
Probe DNA	COOH-(CH <sub>2</sub> ) <sub>6</sub> -TCAAC ATCAG TCTGA TATGCTA
MiRNA-21	UAGCU UAUCA GACUG AUGUU GA
Single-base mismatch	UAGCC UAUCA GACUGA UGUU GA
miRNA (SM)	
Non-complementary miRNA (NC)	AGAGG UAGUA GGUUG CAUAG UU

**Table S2** Measurement of microRNA-21 in simulated sample (n = 3).

Type	Sample	Added (pM)	Found (pM)	Recovery (%)	RSD (%)
Signal-on	1	100	102.09, 101.62, 98.43	100.70	1.99
	2	1000	1002.36, 997.70, 990.83	99.69	0.58