

Supporting information

β -Cyclodextrin functionalized $Ti_3C_2T_x$ MXenes nanohybrids as innovative signal amplification for electrochemical sandwich-like immunosensing of squamous cell carcinoma antigen

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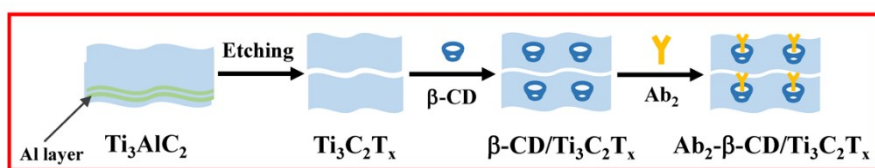
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Scheme S1. The preparation procedures for $\text{Ab}_2\text{-}\beta\text{-CD}/\text{Ti}_3\text{C}_2\text{T}_x$.

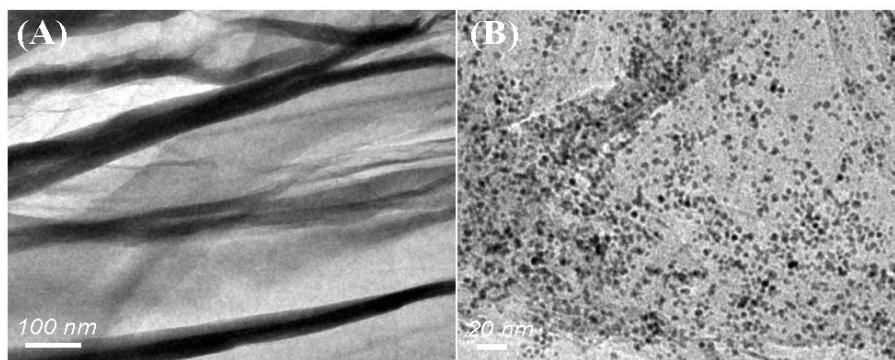


Figure S1. The TEM images of GN (A) and Au/GN (B).

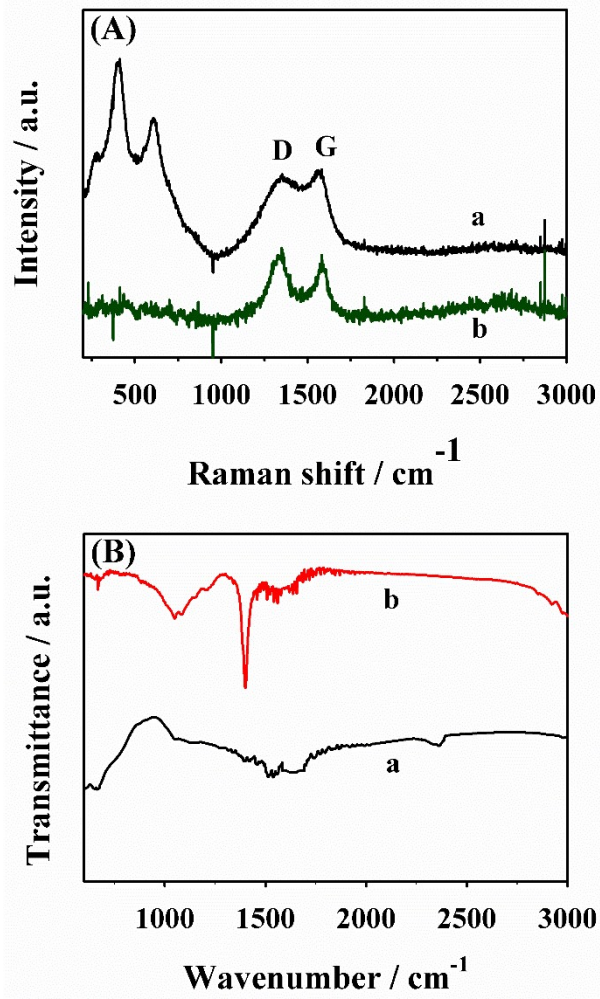


Figure S2. The (A) Raman and (B) FT-IR spectras of $\text{Ti}_3\text{C}_2\text{T}_x$ MXenes (a) and $\beta\text{-CD}/\text{Ti}_3\text{C}_2\text{T}_x$ nano hybrid (b).

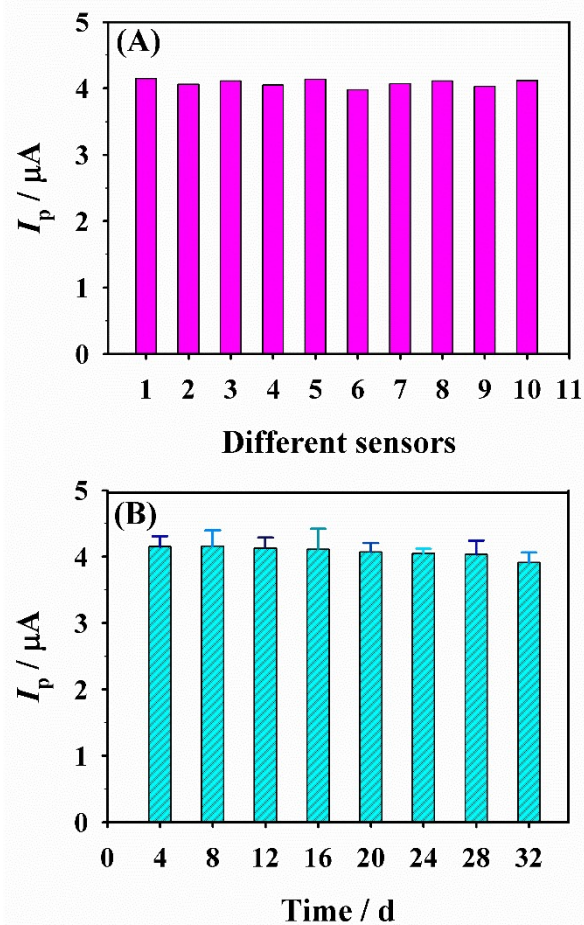


Figure S3. The peak current responses from Cu^0 at (A) ten independently fabricated immunosensors and (B) the immunosensors with different storage times (day).

Table S1. Comparison of different Sandwich-like electrochemical sensors for the detection of SCCA.

Signal amplification		Linearity / ng mL ⁻¹	LOD / pg mL ⁻¹	Reference
Carrier	Probe or catalyzer			
GN	Pt/PdCu	10 ⁻⁴ - 1.0; 1.0 - 30.0	0.25	1
Pillar[5]arene/ Pd/MoS ₂	Thionine	10 ⁻³ - 10.0	0.14	2
Na-Mont-PANI	AuNPs	10 ⁻⁴ - 5.0	0.3	3
Co ₃ O ₄ @CeO ₂	Au@Pt	10 ⁻⁴ - 80.0	0.033	4
β-CD/Ti ₃ C ₂ T _x	Free	5×10 ⁻⁵ -20.0	0.01	This work

Reference

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- [2] X. Qian, X. Zhou, Q. Qu, L. Li, L. Yang, Ultrasensitive and robust electrochemical sensing platform for the detection of squamous cell carcinoma antigen using water-soluble pillar [5] arene-Pd/MoS₂ nanocomposites, *Electrochimica Acta* 313 (2019) 235-244.
- [3] H. Jia, P. Gao, H. Ma, Y. Li, J. Gao, B. Du, Q. Wei, Ultrasensitive electrochemical immunosensor for squamous cell carcinoma antigen detection using lamellar montmorillonite-gold nanostructures as signal amplification, *Talanta* 132 (2015) 803-808.
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