Supporting Information

Ionic liquid functionalized metal-organic framework nanowires for sensitive and real-time electrochemical monitoring nitric oxide released from living cells

Lijun Tang,† Xinyu Sun,† Xianping Gao, Linyu Wang, Pei Yang, and Pinghua Ling*

Laboratory of Functionalized Molecular Solids, Ministry of Education, Anhui Key Laboratory of Chemo/Biosensing, College of Chemistry and Materials Science, Anhui Normal University, Wuhu 241002, P. R. China.

* To whom correspondence should be addressed. E-mail: phling@ahnu.edu.cn (P. Ling)

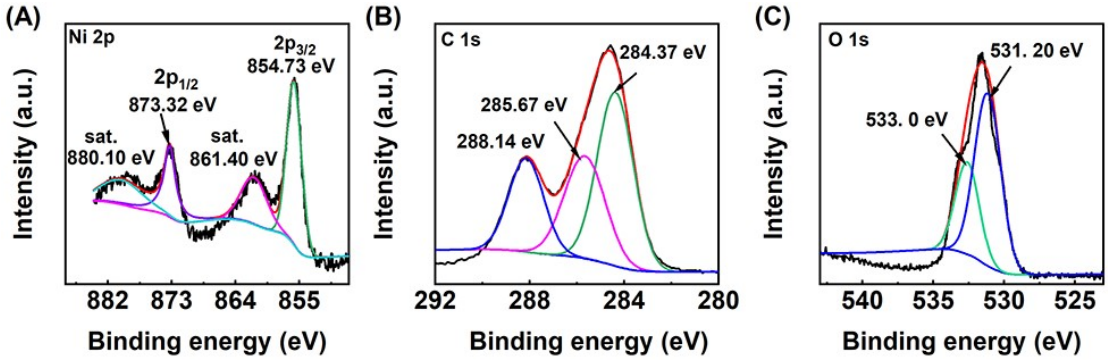

Fig. S1. XPS spectra of MOFNWs: (A) Ni 2p, (B) C 1s, and (C) O 1s.

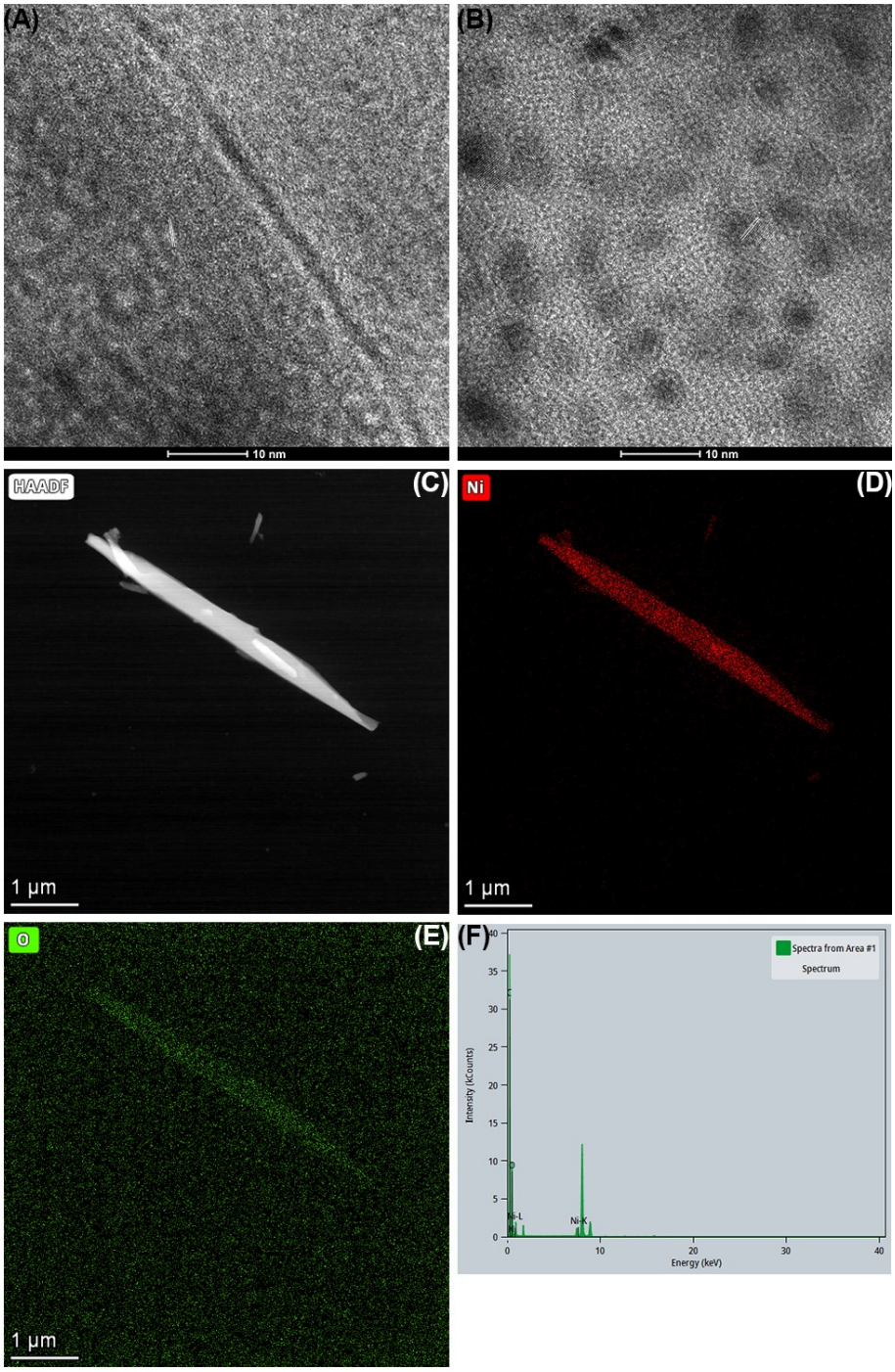

Fig. S2. HRTEM images of (A) MOFNWs and (B) IL@Au@MOFNWs/ITO, (C-E) STEM images and the corresponding elemental mapping of MOFNWs, and (F) TEM-EDS of MOFNWs.

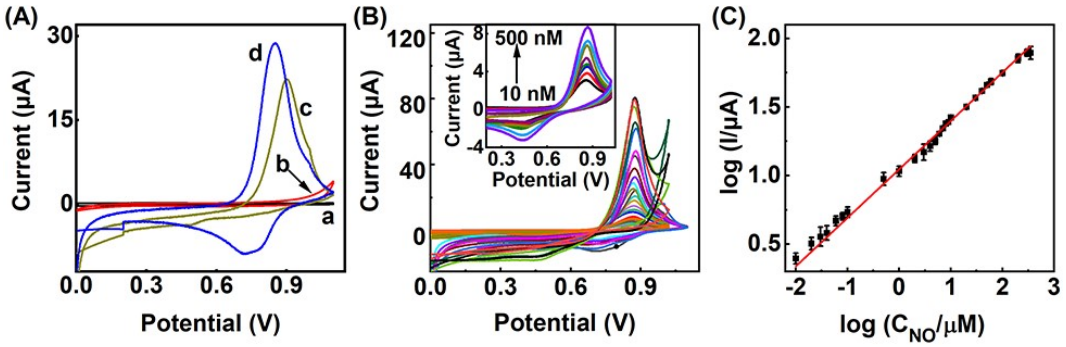

Fig. S3. (A) CVs of bare ITO (a), MOFNWs/ITO (b), Au@MOFNWs/ITO (c) and IL@Au@MOFNWs/ITO (d) in 0.1 M pH 7.4 PBS containing 10 μM NO. (B) CV responses of the biosensor to different concentrations of NO at 10 nM, 20 nM, 30 nM, 40 nM, 60 nM, 80 nM, 100 nM, 500 nM, 1.0 μM, 2.0 μM, 3.0 μM, 4.0 μM, 5.0 μM, 6.0 μM, 7.0 μM, 8.0 μM, 9.0 μM, 10 μM, 20 μM, 30 μM, 40 μM, 50 μM, 60 μM, 100 μM, 200 μM, 300 μM and 350 μM (from top to bottom). (C) Calibration curve of current intensity vs. NO concentration.

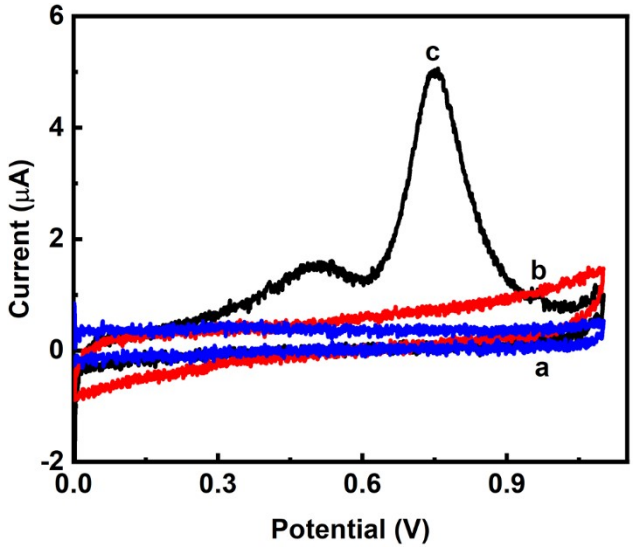

Fig. S4. CV response of IL/ITO (a), AuNPs/ITO (b) and IL@Au/ITO (c) with 30 μM NO in 0.1 M PBS.

Table S1. Comparison of the performance of this sensor with other reported for the determination of NO.

Modified electrodes	Linear range	LOD	Reference
N-G/FePc/Nafion/PLL ITO electrode	0.18−400 μM	0.18 μM	1
poly(TTBA-rGO)/ZnO/GCE	0.019–76 μM	7.7 nM	2
CNF/hemin/Nafion electrode	0.02−1 μM	10 nM	3
CA/CS/GNP 1.54T-CUA electrode	5-100 μM	0.2 μM	4
Nafion/Pt/BDD	0-10 μM	0.5 μM	5
laminin/AuNPs-ctDNANGS/SPCE	2−500 nM	0.8 nM	6
3D hemin/CFN	0.024−70.9 μM	8.0 nM	7

Table S2. The reproducibility of the sensor for cell culture experiments

Parallel test	Current (μA)	
	L-Arg 2.0 mM	L-Arg 8.0 mM
1	7.25	21.44
2	7.54	22.04
3	7.83	20.85
4	7.91	22.76
5	8.06	22.40
6	7.91	22.70
Average	7.75	21.70
RSD	3.85	3.73

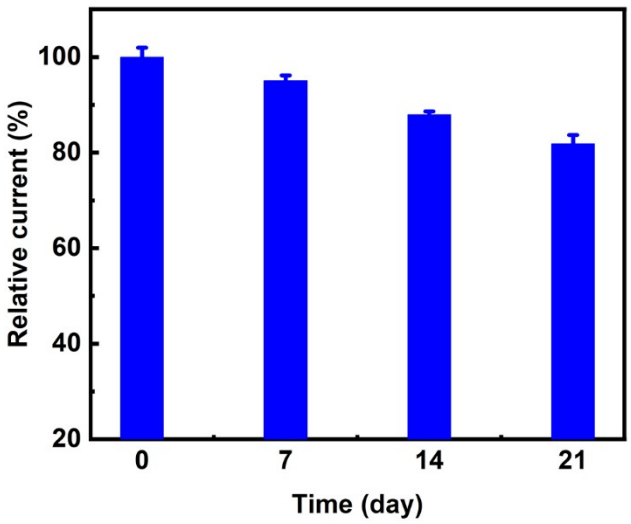

Fig. S5. Stability test for the IL@Au@MOFNWs/ITO electrode over 21 days.

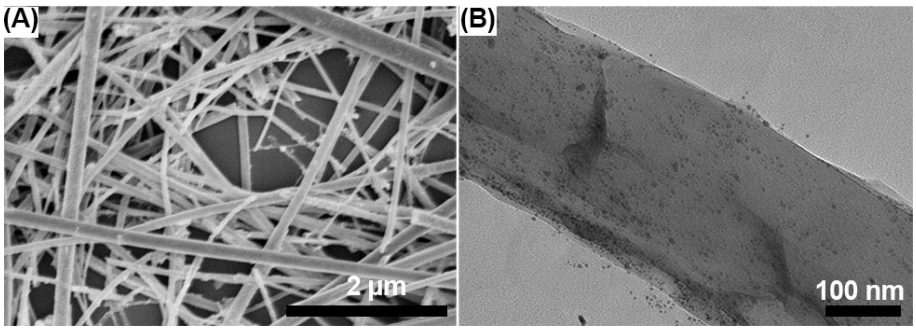

Fig. S6. (A) SEM and (B) TEM imagines of IL@Au@MOFNWs/ITO after electrochemical testing.

Supporting Reference

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