

AuNPs/Cu-TCPP(Fe) Metal-Organic Framework Nanofilm: Paper-based
Electrochemical Sensor for Non-invasive Detection of Lactate in Sweat

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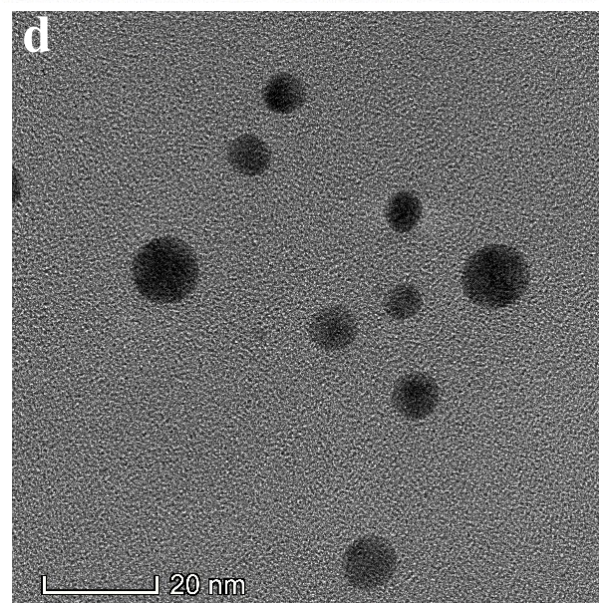
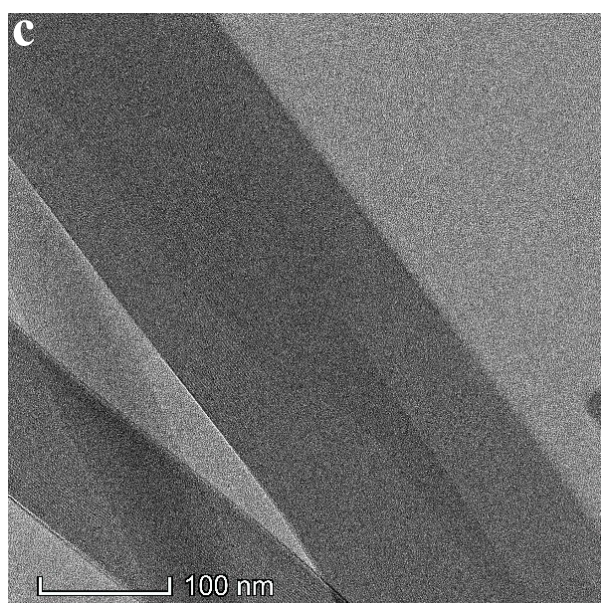
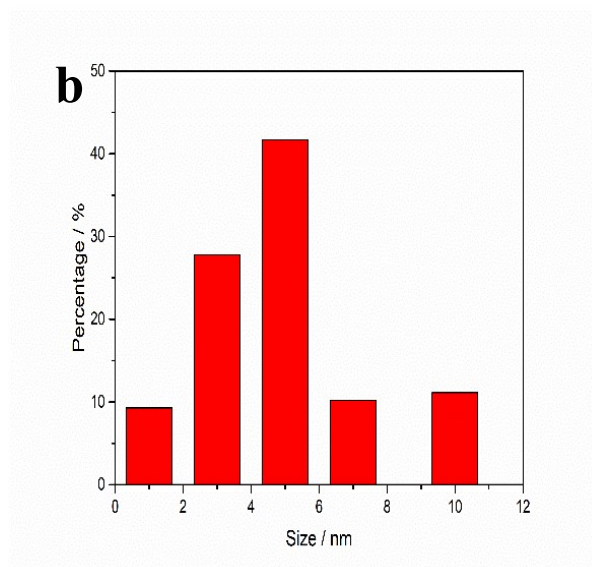
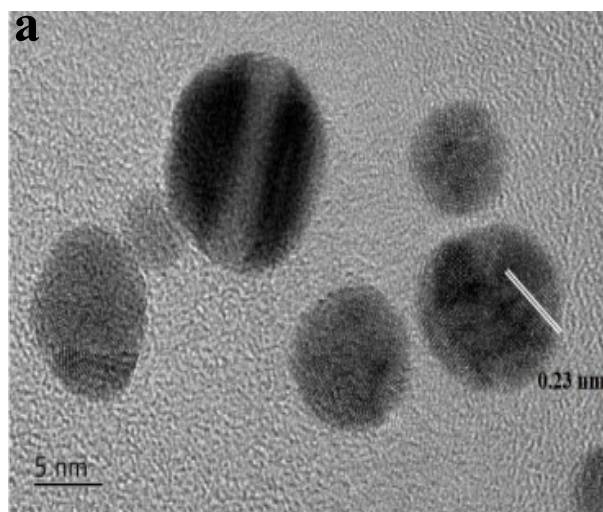


Fig S1. a,c,d) TEM images of AuNPs/Cu-TCPP(Fe) hybride nanosheets.

b) Size distribution histogram of Au NPs nanosheets.

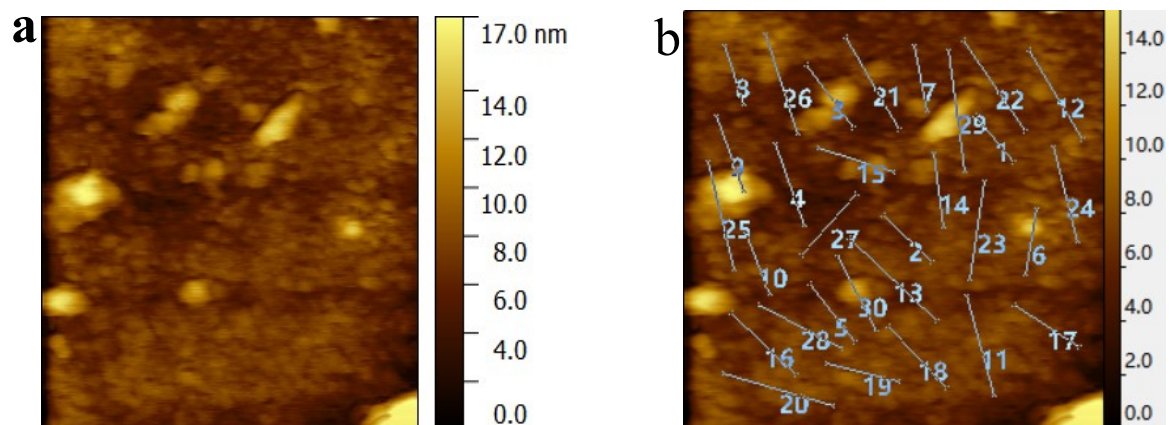


Fig S2. a,b) AFM image of 2D Cu-TCPP(Fe) nanosheets.

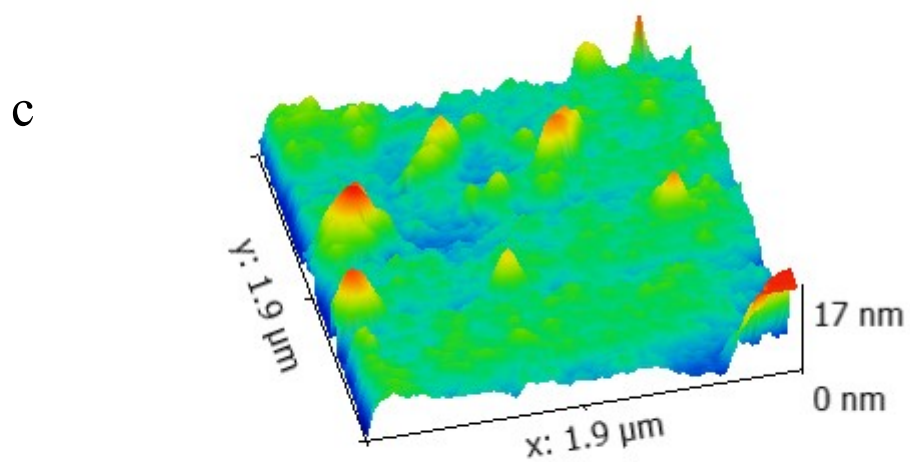


Fig S3. 3D image of AFM of 2D Cu-TCPP(Fe) nanosheets.

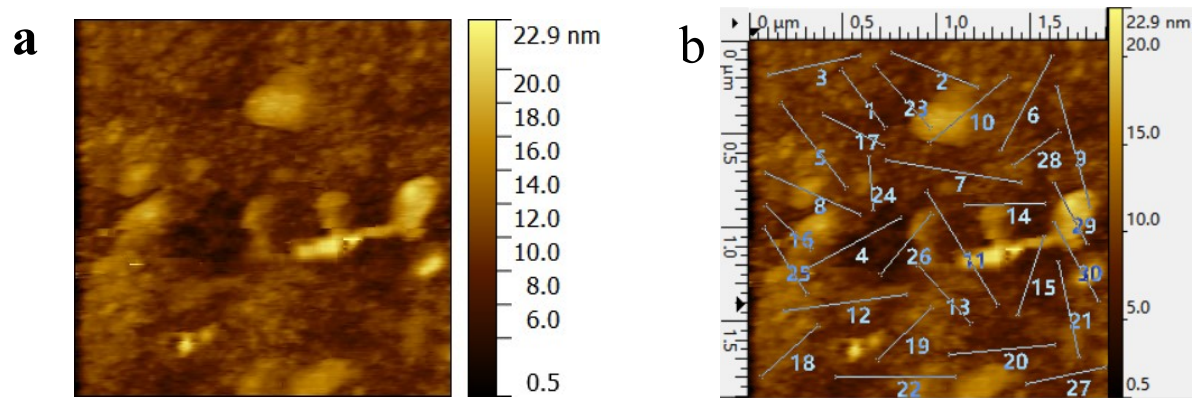


Fig S4. a,b) AFM image of Au NPs/Cu-TCPP(Fe) hybrid nanosheets.

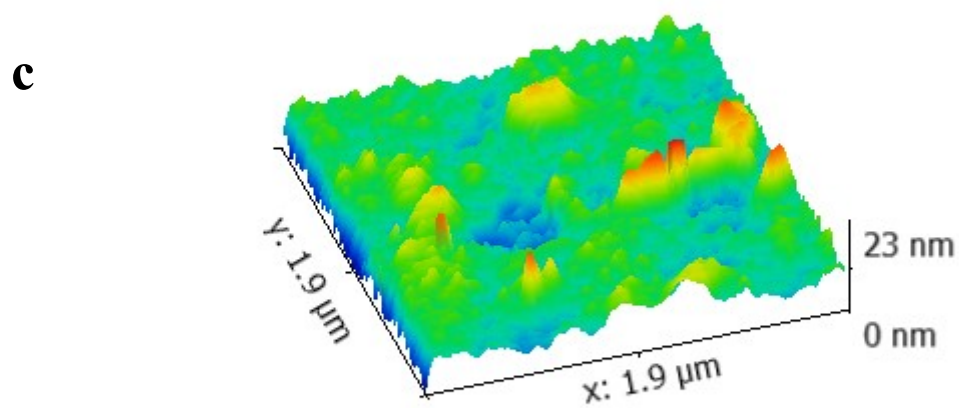


Fig S5. 3D image of AFM of Au NPs/Cu-TCPP(Fe) hybrid nanosheets.

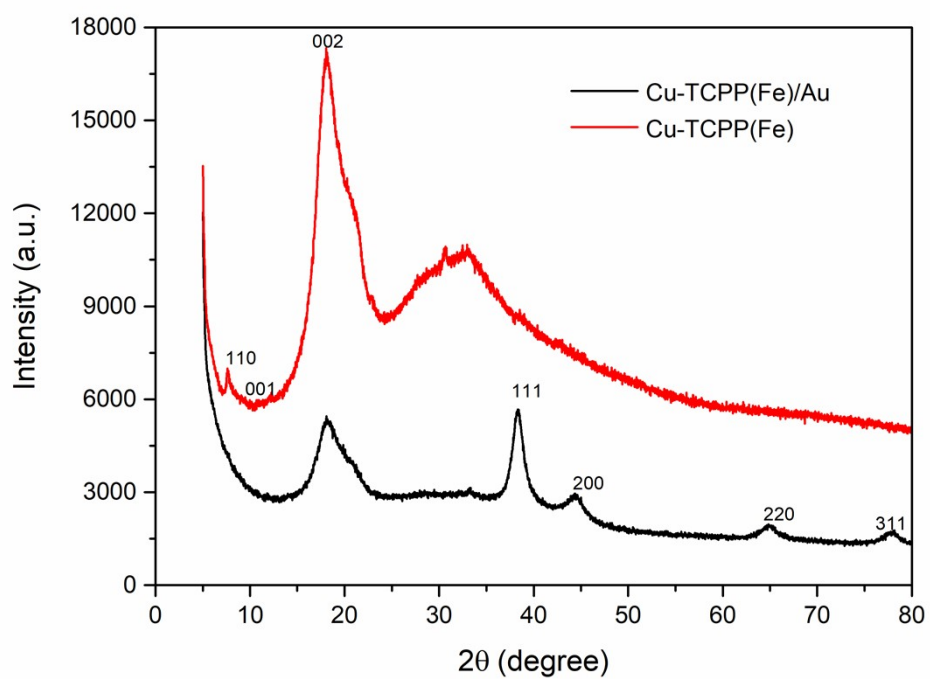


Fig S6. XRD patterns of 2D Cu-TCPP(Fe) nanosheets (red line) and Au NPs/Cu-TCPP(Fe) hybrid nanosheets.

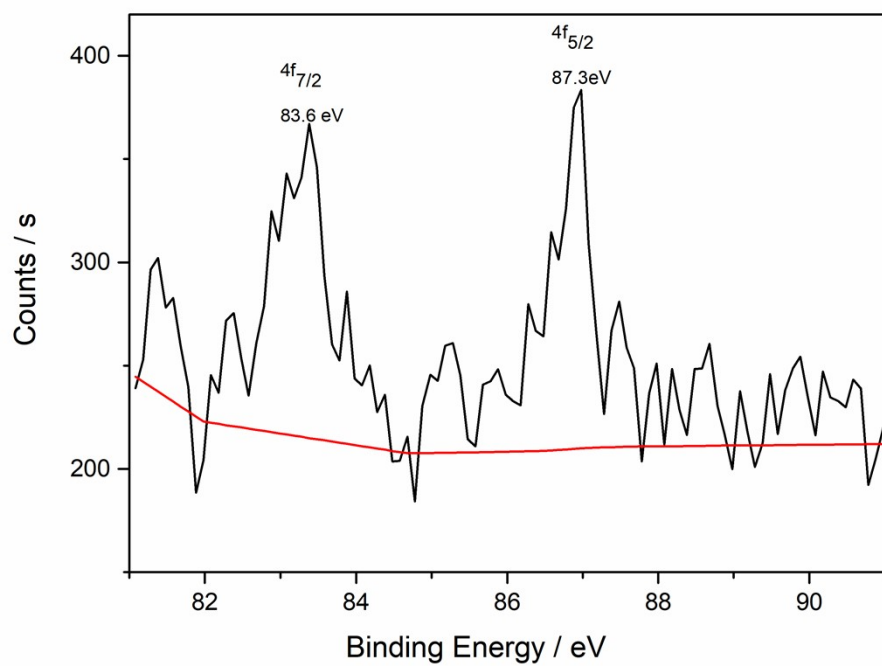


Fig S7. Au 4f XPS spectrum of Au NPs/Cu-TCPP(Fe) hybrid nanosheets.

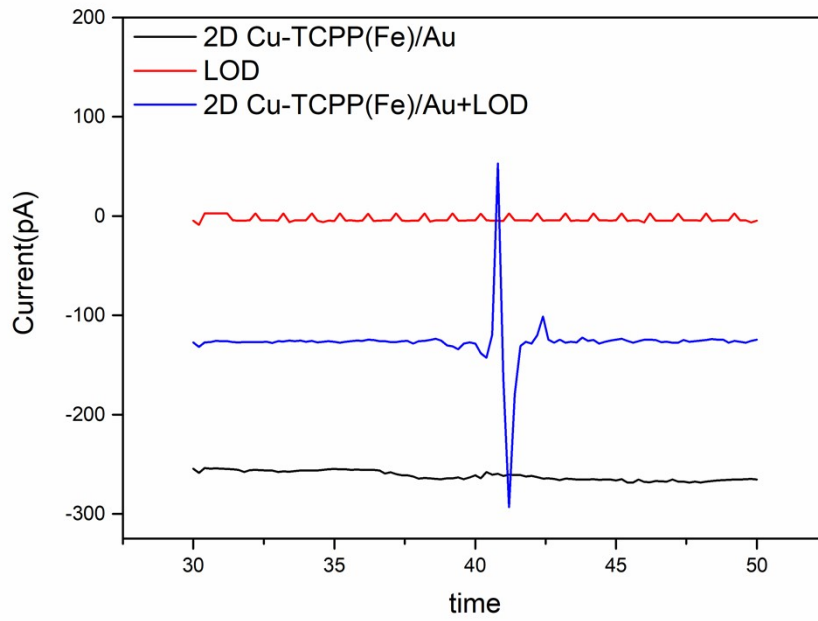


Fig S8. The feasibility of experiment.

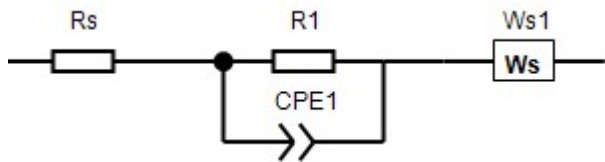


Fig S9. The diagram of equivalent circuit.

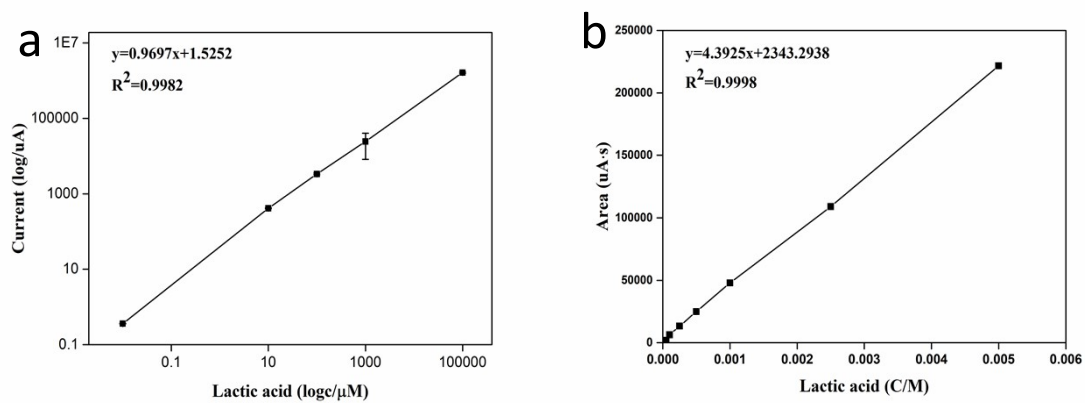


Fig S10. Standard curves for this work and HPLC a) this work: 10 nM, 10 μ M, 100 μ M, 1mM, 100 mM b) HPLC: 50 μ M, 100 μ M, 250 μ M, 500 μ M, 1 mM, 2.5 mM, 5 mM

		1	2	3	Mean	RSD (%)
Current (pA)	Same electrode (repeatability)	117.845	115.837	117.265	116.982	0.88
	Different electrodes (reproducibility)	107.599	104.253	102.560	104.804	2.45

Table S1. The repeatability and reproducibility of lactic acid biosensors.

Material	Added/pM	Found/pM	Recovery/%	RSD/%
Perspiration	0	2.04	-	10.45
	50	54.77	110	3.03
	500	544.86	109	6.32
	5000	5890.71	118	1.71

Table S2. Recovery tests of lactic acid in perspiration samples (n=6).

Material	Added/ μ M	Found/ μ M	Recovery/%	RSD/%
Perspiration	0	2.04×10^{-6}	-	10.45
	50	52	104	9.80
	500	421	84	11.15
	5000	5486	110	18.91

Table S3. Recovery tests of lactic acid in perspiration samples (n=6).

