Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting information

Catalytic effect of TiO_2 nanosheet on extracellular electron transfer of *Shewanella loihica* PV-4

Tao Yin[a], Hui Li[a], Lin Su[a], Shuo Liu[a], Chunwei Yuan[a], Degang Fu[a,b,c,*]

[a]State Key Laboratory of Bioelectronics, Southeast University, Nanjing, 210096, People's Republic of China
[b]Suzhou Key Laboratory of Environment and Biosafety, Suzhou, 215123, People's Republic of China
[c]Jiangsu Key Laboratory for Biomaterials and Devices, Southeast University, Nanjing, 210096, People's Republic of China

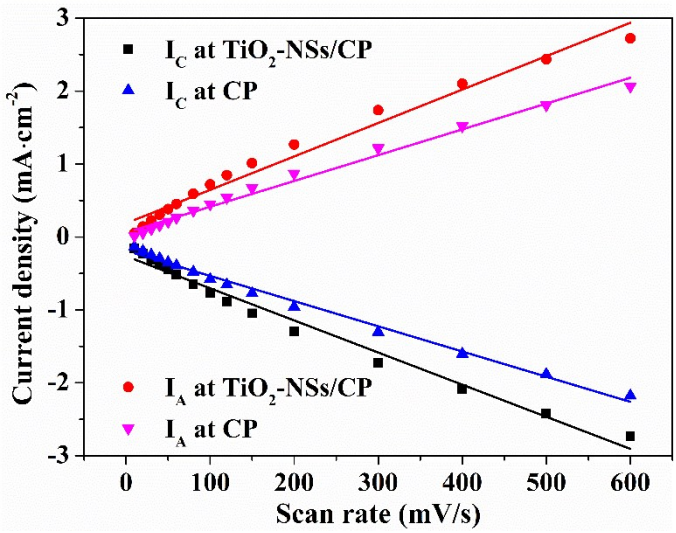

Fig S1. Linear dependence of peak current density with scan rate (v) for RF at both electrodes.

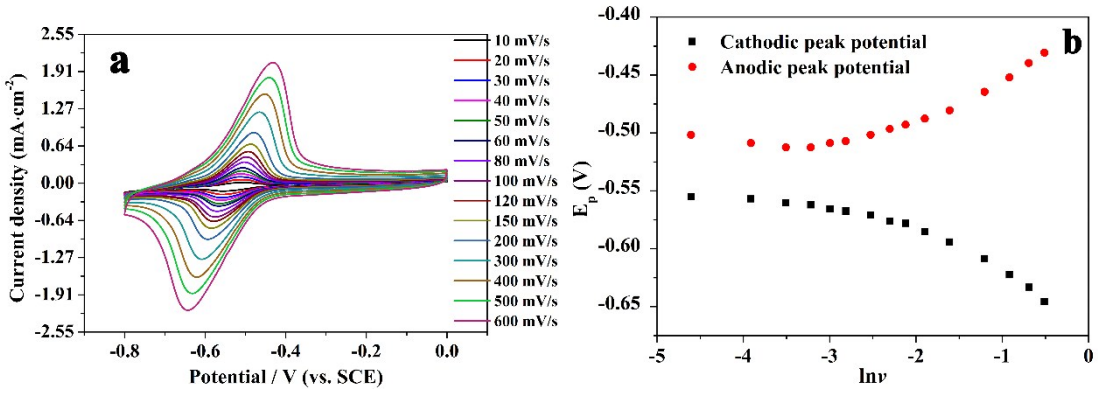

Fig S2. (a) CV of RF with different scan rate and (b) peak potentials of RF *vs* ln$v$ at CP electrode.

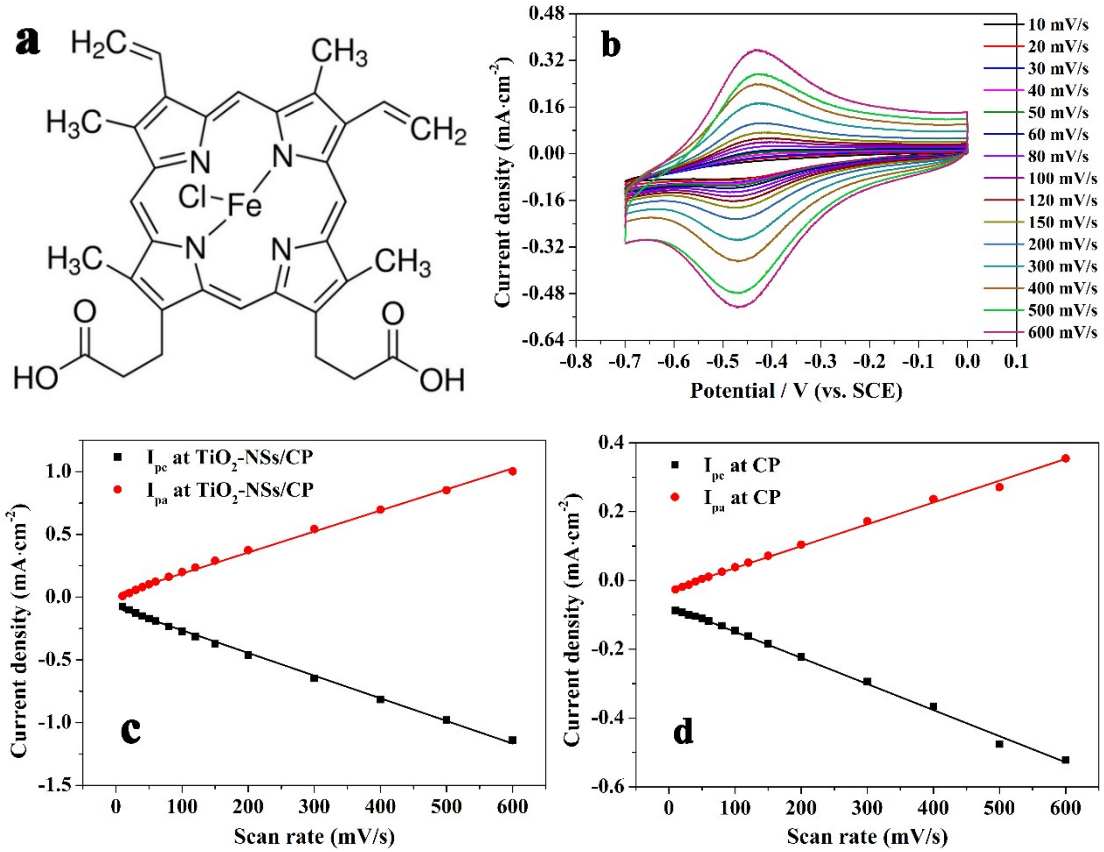

Fig S3. (a) Molecular structure of chlorohemin, (b) CV of chlorohemin with different scan rate at CP electrode, (c) and (d) the relationships between peak current and scan rate at TiO_2-NSs/CP and CP electrode, respectively.

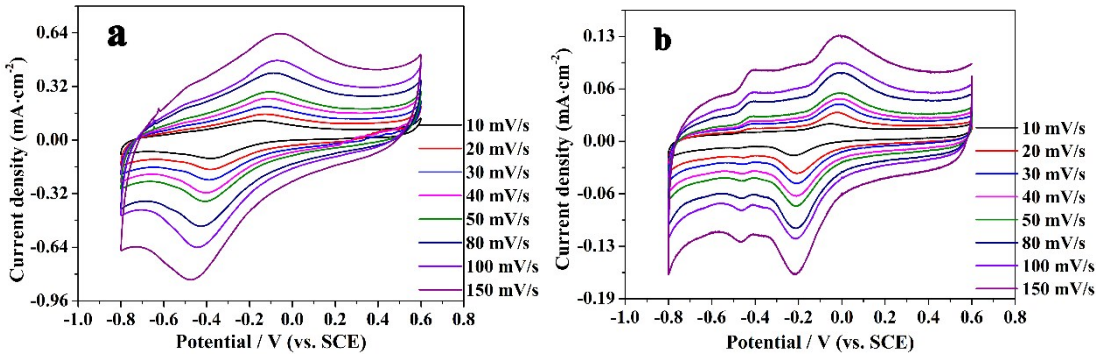

Fig S4. CV curves of PV-4 at TiO_2-NSs/CP (a) and CP (b) electrodes at different scan rate in single chamber reactor.

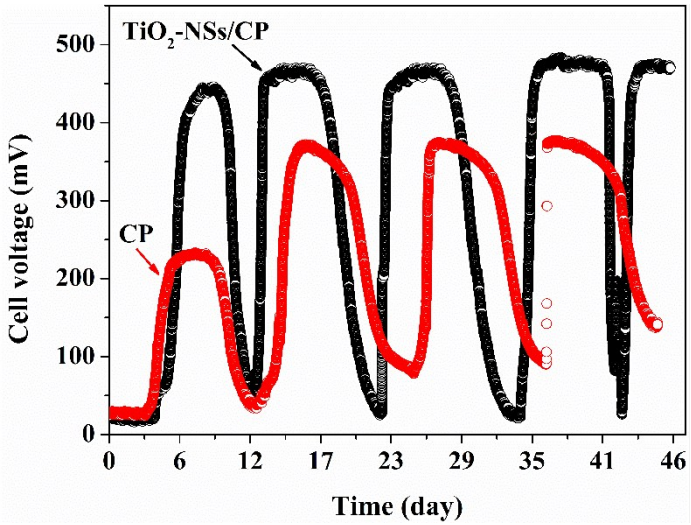

Fig. S5. The long-term operation curves of PV-4 inoculated MFCs with different anodes.

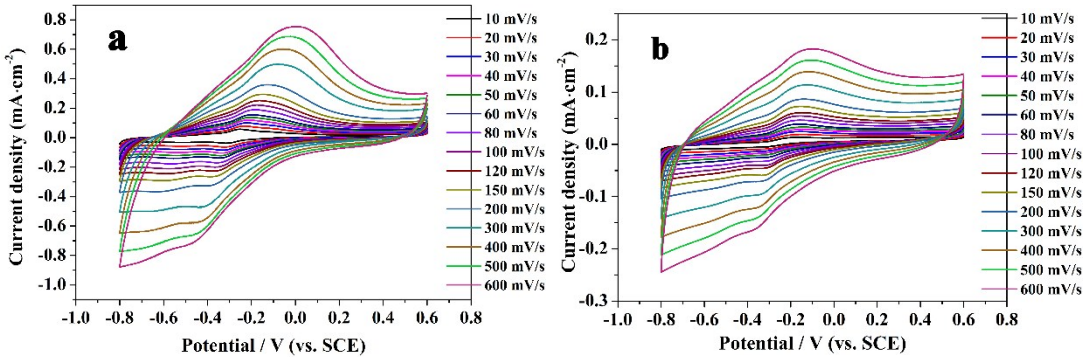

Fig S6 CV curves of TiO_2-NSs/CP (a) and CP (b) anodes in MFC at different scan rate.

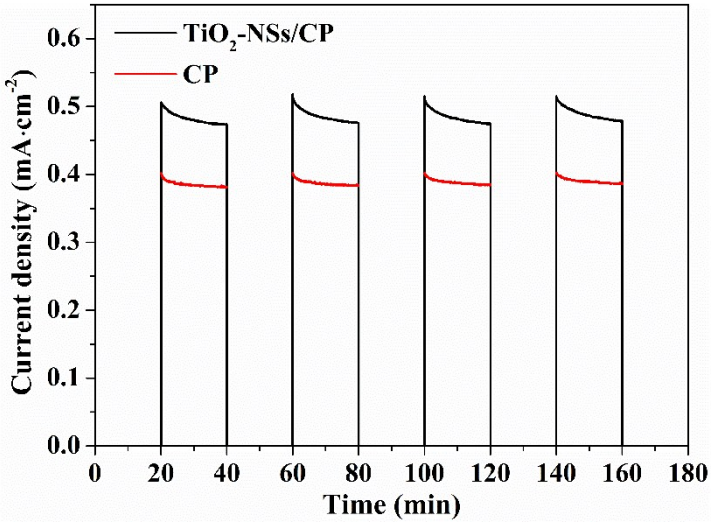

Fig S7 The current densities of TiO_2-NSs/CP and CP electrodes in repeat of 20 min charging and 20 min discharging.

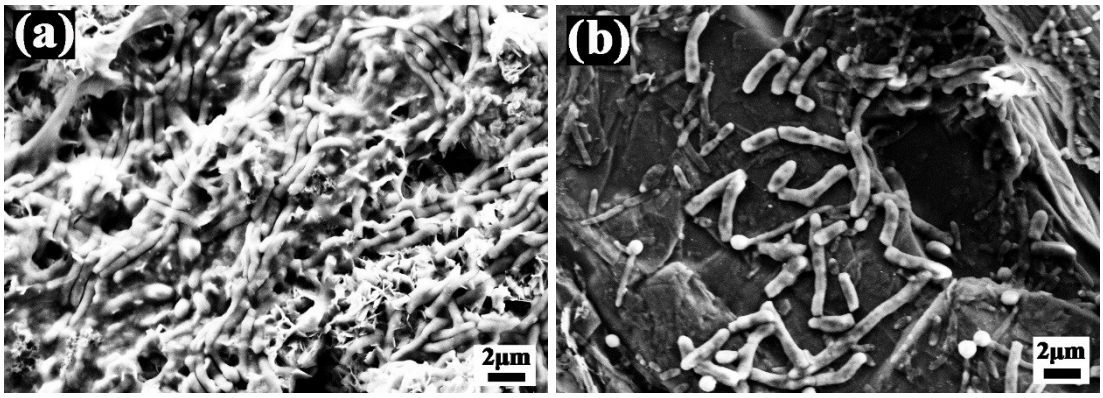

Fig. S8 SEM images of PV-4 grown anodes of TiO_2-NSs/CP (a) and CP (b).

Table S1 Biomass measued at CP and TiO_2-NSs/CP anode in MFC*

Anode	**Biomass (μg/cm^2)**
CP	58.5 ± 1.75
TiO_2-NSs/CP	67.2 ± 1.64

* Biomass was measured using Pierce BCA Protein Assay Kit from Thermo Fisher Scientific Inc.

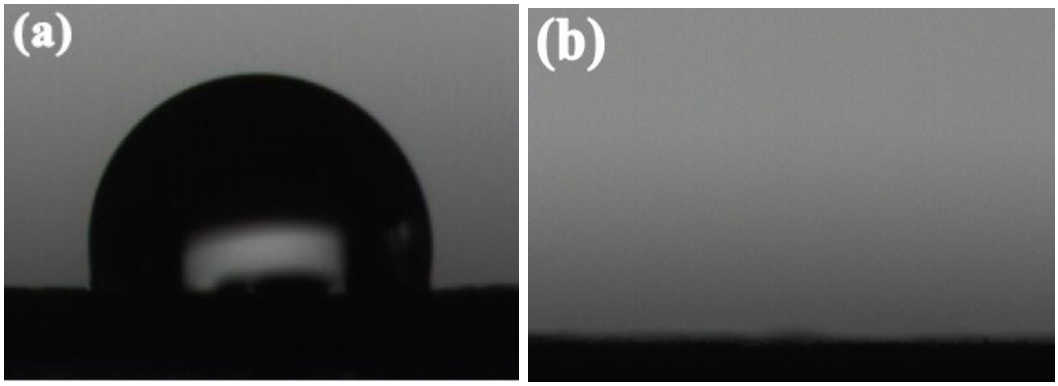

Fig. S9 Images to show the contact angle of CP (about 103 ^{o}) (a) and TiO_2-NSs/CP (0 ^{o}) (b).

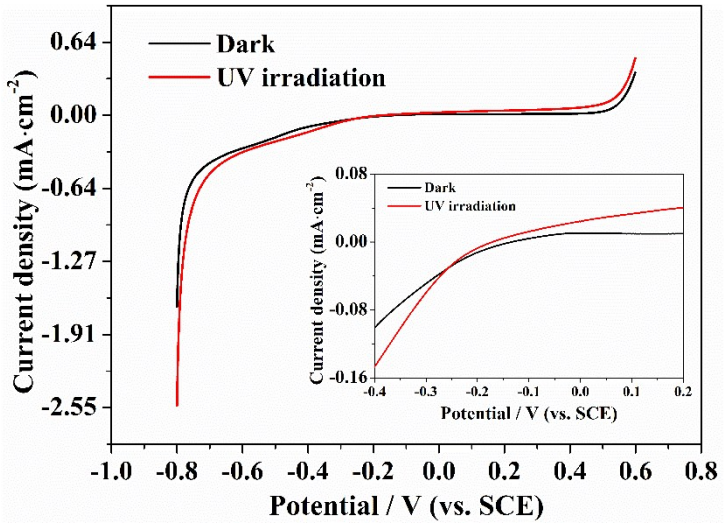

Fig. S10 LSV of TiO_2-NSs/CP in DM medium (pH=7.4), scan rate of 4mV/s.

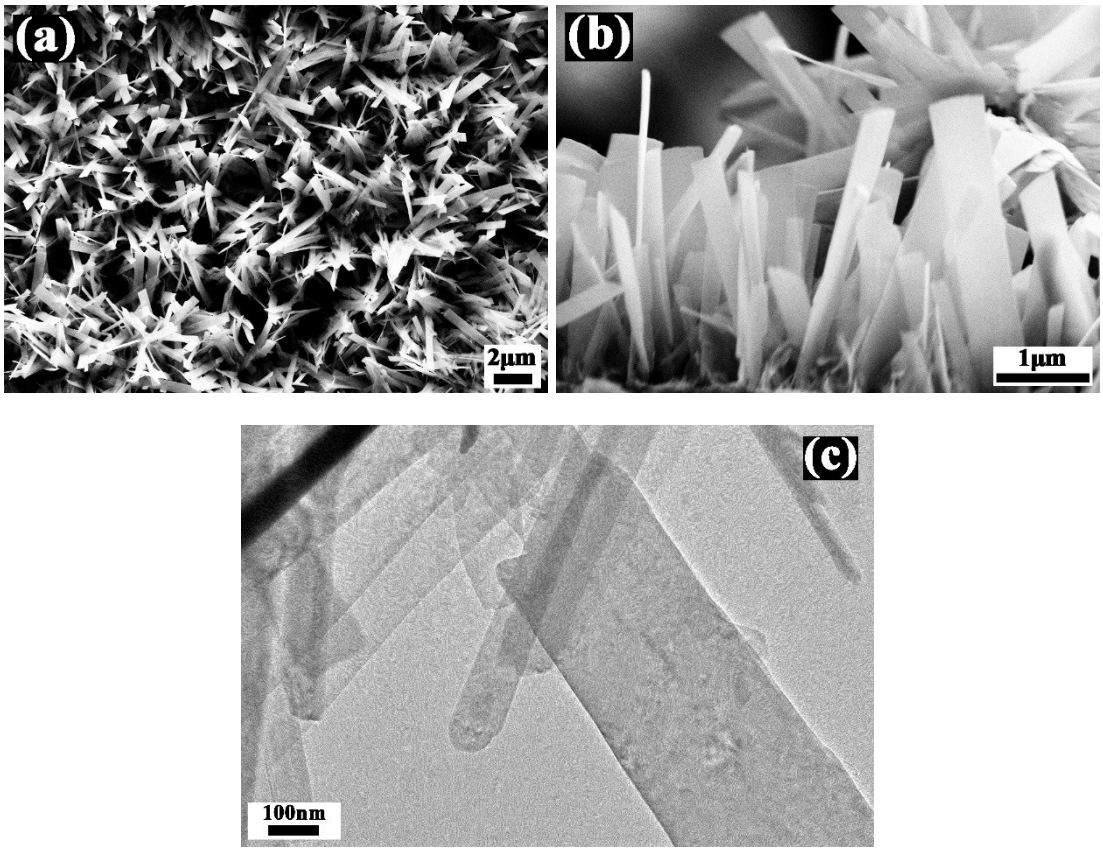

Fig. S11 FESEM image of TiO_2-NSs/CP electrode (a) and its cross section (b), TEM image of TiO_2-NSs (c).

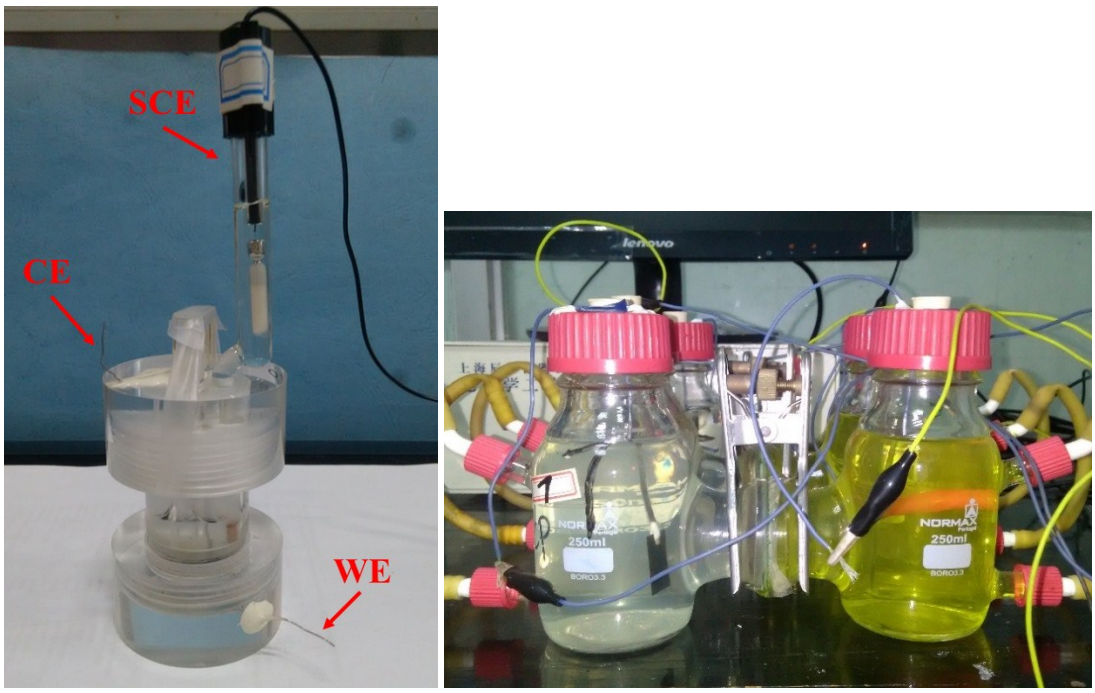

Fig. S12 The pictures of a single chamber reactor (left) and a dual-chamber MFC (right).

*WE, CE and SCE represent the working electrode, the counter electrode and saturated calomel electrode, respectively.