## **Electronic Supplementary Information**

## Hemin/Au nanorods/self-doped TiO<sub>2</sub> nanowires as a novel photoelectrochemical bioanalysis platform

Zhen Wang, Min Cao, Lei Yang, Donghua Liu and Dacheng Wei\*

State Key Laboratory of Molecular Engineering of Polymers, Department of Macromolecular Science, Fudan University, 220 Handan Road Shanghai 200433, P. R. China

\*E-mail: weidc@fudan.edu.cn

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1. TEM of Au nanorods (Figure S1)



**Figure S1.** TEM image of Au nanorods with different aspect ratios: (a) AR 1.1, (b) AR 3.0.

## 2. UV-vis absorbance spectrum of Au nanorods (Figure S2)



**Figure S2.** UV-vis absorbance spectra of Au nanorods with different aspect ratios: (a) AR 1.1, (b) AR 3.0.

3. UV-vis absorbance spectrum of hemin (Figure S3)



Figure S3. UV-vis absorbance spectra of hemin in ethanol.

## 4. The sensitivity and selectivity of hemin/m-Au NRs/SD-TiO<sub>2</sub> NWs sensor obtained at different applied potentials (Figure S4)



**Figure S4.** (A) The sensitivity of the GSH sensor obtained at different applied potentials: 0, 0.1, 0.2, 0.3 V (vs. Ag/AgCl). (B) The selectivity profile of the present GSH sensor obtained at different applied potentials.

5. The photocurrent response of hemin/m-Au NRs/SD-TiO<sub>2</sub> NWs to GSH (Figure S5)



**Figure S5.** Plots of photocurrent obtained at hemin/m-Au NRs/SD-TiO<sub>2</sub> NWs electrode to 10 nM GSH in 0.1 M PBS (pH 7.4) at the applied potential of 0.2 V vs. Ag/AgCl under simulated sunlight illumination.

6. The photocurrent response of pristine TiO<sub>2</sub> NWs to GSH (Figure S6)



**Figure S6.** Current versus time data of the pristine  $TiO_2$  NWs biosensor for successive addition of 0.1  $\mu$ M GSH to 0.1 M PBS (pH 7.4) at the applied potential of 0.2 V vs. Ag/AgCl under simulated sunlight illumination.



7. The stability of hemin/m-Au NRs/SD-TiO<sub>2</sub> sensor (Figure S7)

Figure S7. The stability test for the hemin/m-Au NRs/SD-TiO<sub>2</sub> sensor.