Supporting Information

Constructing TiO$_2$/PDA core/shell nanorod array electrode as a highly sensitive and stable photoelectrochemical glucose biosensor

Wei Xu$^a$, Wenke Yang$^a$, Hongkai Guo$^a$, Lianyuan Ge$^a$, Jinchun Tu$^a$,* and Chao Zhen$^b$,*

$^a$ State Key Laboratory of Marine Resource Utilization in South China Sea, College of Materials and Chemical Engineering, Hainan University, Haikou 570228, PR China

$^b$ Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, 72# Wenhua RD, Shenyang 110016, China.

* Corresponding author: tujinchun@hainu.edu.cn (Jinchun Tu)
* Corresponding author: czhen@imr.ac.cn (Chao Zhen)
**Fig S1.** XRD patterns of the TiO$_2$ nanorod arrays (black one) and TiO$_2$/PDA core/shell nanorod arrays (red one) on the FTO substrate. (The vertical line of green and blue are the peaks corresponding to the PDF card of R-TiO$_2$, SnO$_2$, respectively. Meanwhile, the interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

**Fig S2.** FTIR spectra of TiO$_2$ nanorod arrays, PDA and TiO$_2$/PDA core/shell nanorod arrays.
Fig S3. J-V curves of TiO$_2$ nanorod arrays under simulated light, TiO$_2$/PDA core/shell nanorod arrays in the dark and under simulated light.

Fig S4. Chronoamperometric i-t response of glucose oxidase modified TiO$_2$/PDA electrode to glucose with different concentrations in phosphate buffer at 0.4V.
**Fig S5.** (a) Chronoamperometric i–t response of the glucose oxidase modified TiO$_2$ electrode to glucose with different concentrations in phosphate buffer at 0.4V; (b) The calibration curve between glucose concentration vs photocurrent density.

**Fig S6.** Stability test of the glucose oxidase modified TiO$_2$/PDA electrode at the concentration of 1 mM glucose.