Supporting information for

Preparation of Bi/BiOBr sensitized titania nanorod array via one-pot solvothermal method and construction of kanamycin photoelectrochemical aptasensor

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Chemicals and Apparatus

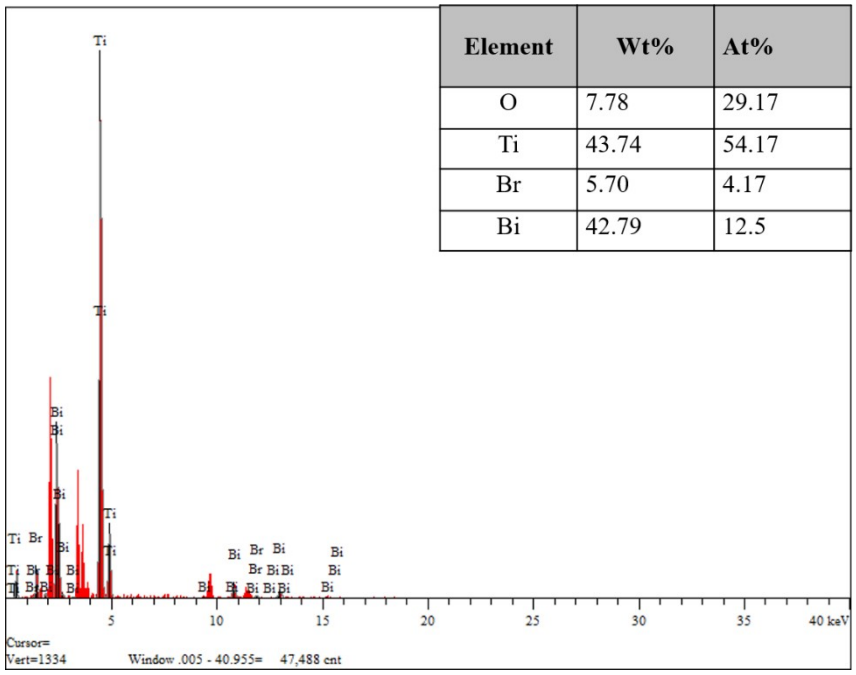
Chemicals

Bismuth nitrate ($Bi(NO_3)_3 \cdot 5(H_2O)$) was purchased from Tianjin Tianda Purification Material Fine Processing Factory, potassium bromide (KBr), chitosan (CS), ethylene glycol, glucose , butyl titanate, acetone, ethanol, ethyl acetate, and glacial acetic acid were purchased from Tianjin Kaitong Chemical Reagent Co., Ltd. Chloramphenicol, oxytetracycline, amoxicillin, erythromycin, ciprofloxacin, chlortetracycline, kanamycin, ascorbic acid, glutaraldehyde, potassium ferricyanide ($K_3[Fe(CN)_6]$) and ferrocyanide potassium ($K_4[Fe(CN)_6]$) were provided by Sinopharm Chemical Reagent Co., Ltd. (Shanghai, China). Tris-low EDTA (TE, pH=7.4), bovine serum albumin (BSA), and kanamycin-binding DNA aptamer with the sequence 5'-NH_2-$(CH_2)_6$-TGG-GGG-TTG-AGG-CTA-AGC-CGA-3' were purchased from Sangon Bioengineering Technology Co., Ltd. (Shanghai, China). Phosphate buffered saline (PBS, 0.1M, pH=7.4) was prepared by KH_2PO_4 and Na_2HPO_4. PBS (0.1 M, pH=7.4) and was used as a supporting electrolyte, which was prepared by mixing stock solutions of Na_2HPO_4 and NaH_2PO_4. Fluorine-doped tin oxide (FTO) (10 mm×20 mm) was purchased from Wuhan Jingge Solar Technology Co., Ltd.(Wuhan, China. The water used in the whole measurement process was deionized, and all reagents were of analytical grade.

Apparatus

The surface morphology and microstructure were collected by scanning electron microscope (SEM, S3200, Hitachi, Japan) and transmission electron microscope (TEM, H7650, Hitachi, Japan). In addition, x-ray diffraction (XRD, Bruker AXS D8, Germany) was used to test the crystalline properties of the material, the surface elemental composition of the material was analyzed by X-ray photoelectron spectroscopy (XPS, ESCALab250, USA), and ultraviolet-visible diffuse reflectance spectroscopy (UV-vis) DRS, TU1901, China). The electrochemical workstation (CHI660C, Shanghai, China) was used for the PEC measurement, 500 W xenon light source (PEC4000, Beijing NBET, China) equipped with 400 nm cut-off filter was used with the

light intensity of about 50 mW.cm^{-2}. In the three-electrode system, among them, the modified FTO was used as the working electrode, platinum (Pt) wire was used as the counter electrode, and saturated calomel electrode (SCE) was used as the reference electrode.



Element	Wt%	At%
O	7.78	29.17
Ti	43.74	54.17
Br	5.70	4.17
Bi	42.79	12.5

Fig. S1. EDS spectrum of Bi/BiOBr/TiO_2 NRA composites containing Ti, O, Br, and Bi elements.

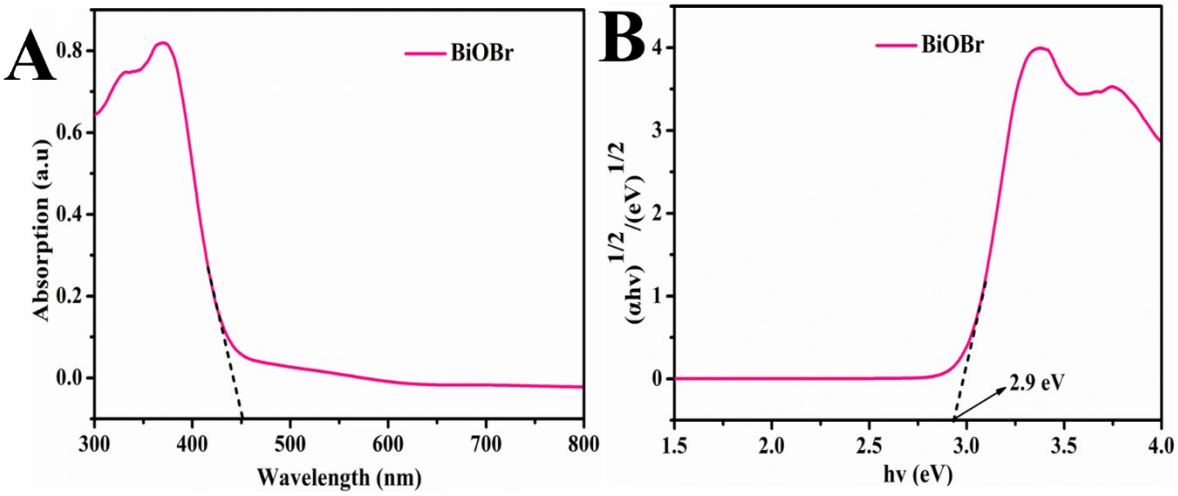


Fig. S2. (A) UV-vis DRS of BiOBr. (B) Plots of $(\alpha hv)^{1/2}$ vs. photon energy (hv) for BiOBr.

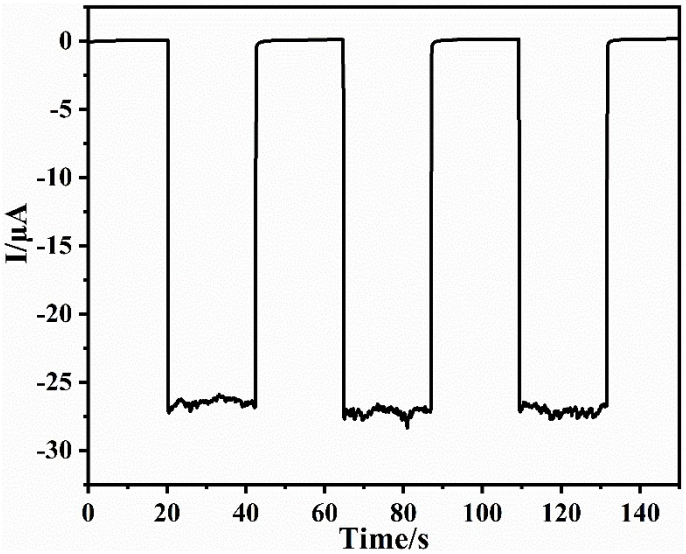


Fig. S3. Blank experiment photocurrent response of PEC aptasensor.

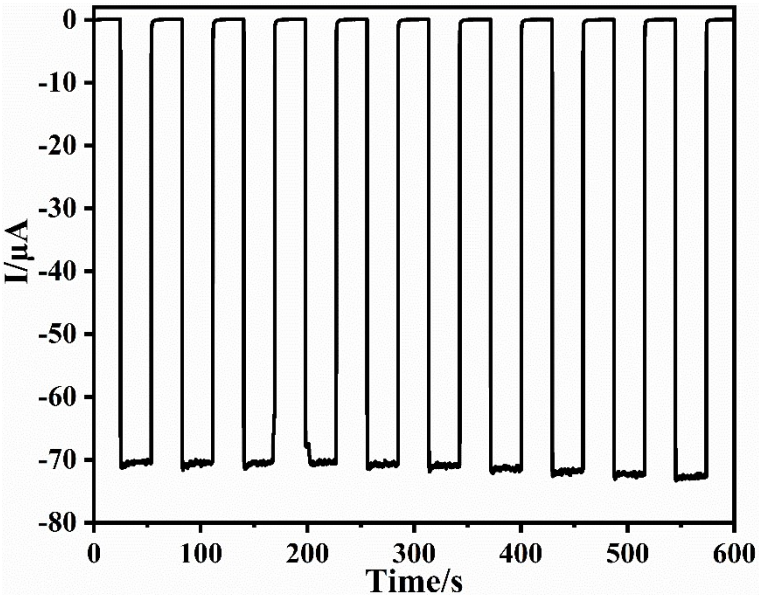


Fig. S4. After 2 weeks of storage, a photocurrent response of 100 nM KAN was detected.