Supporting Information

Jia et al. 10.1073/pnas.1204623109

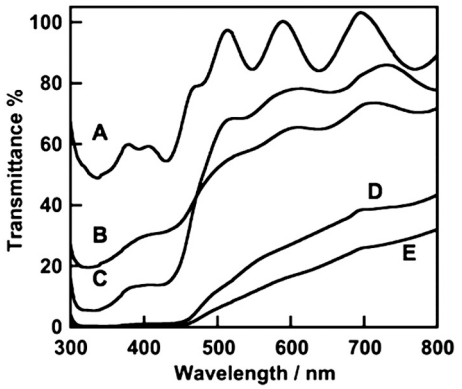

Fig. S1. UV-Vis. transmission spectra of $BiVO_4$ thin film electrodes prepared by calcination at 673 K for 2 h. Concentration of precursor solution, (*A*) 20 mmol L^{-1}, (*B*) 50 mmol L^{-1}, (*C*) 50 mmol L^{-1}, (*D*) 200 mmol L^{-1}, and (*E*) 300 mmol L^{-1}.

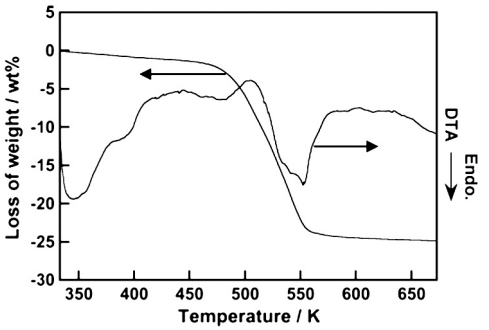

Fig. S2. Thermogravimetric-differential thermal analysis for precursor of $BiVO_4$ thin film. Rate of temperature rising, 10 K min^{-1}.

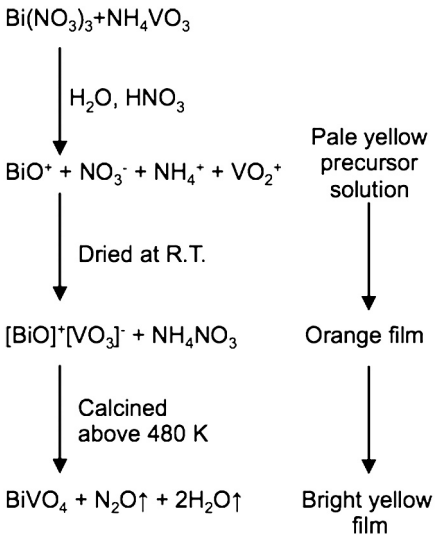

Fig. S3. Main formation process of $BiVO_4$ thin film from a precursor solution.

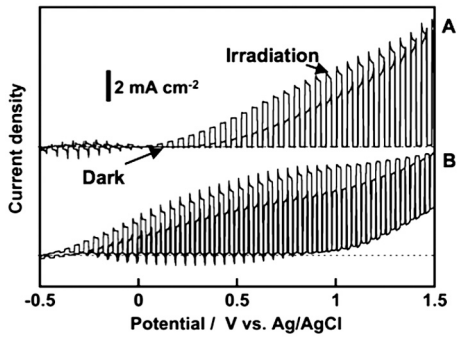

Fig. S4. Current vs. potential curves of (*A*) $BiVO_4$ and (*B*) CoO-modified $BiVO_4$ thin film electrodes under visible light irradiation. Calcination condition, 673 K for 2 h. Electrolyte, 0.1 mol L^{-1} of an aqueous K_2SO_4 solution (phosphate buffer, pH = 6.9); sweep rate, 20 mV s^{-1}; light source, 300 W Xe-lamp with a cut-off filter ($\lambda > 420$ nm).

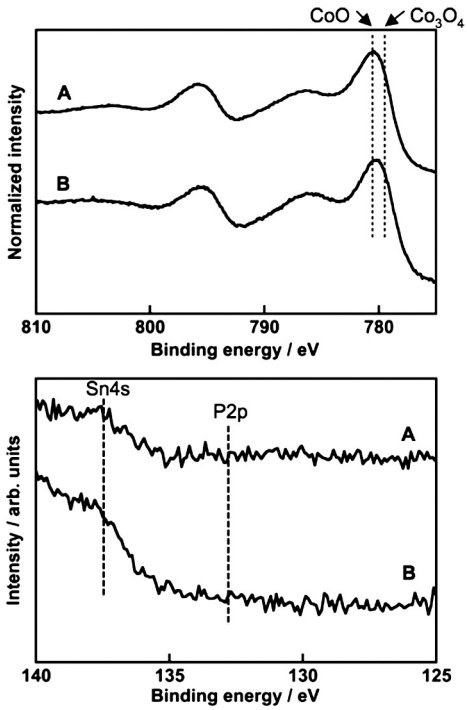

Fig. S5. X-ray photoelectron spectra of Co2p and P2p. (*A*) Before and (*B*) after photoelectrochemical water splitting.