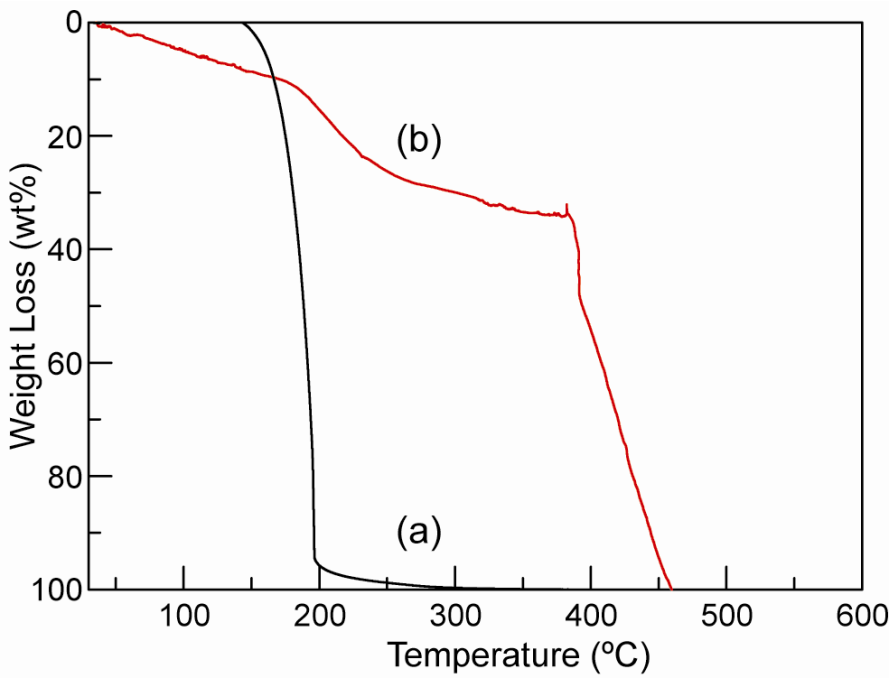

Figure S1 TG curves of (a) Pluronic P123 and (b) sulfonated HmSEBmS under air (ramp ratio: 1 ºC·min^{-1}), respectively.

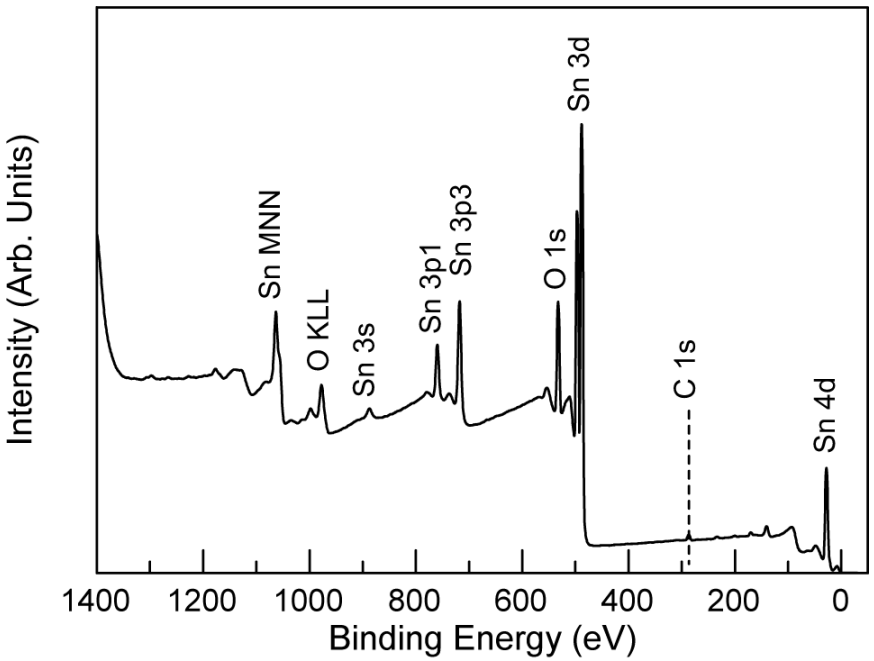

Figure S2 XPS spectrum of mesoporous SnO_2 thin film calcined at 400 ºC for 4h.

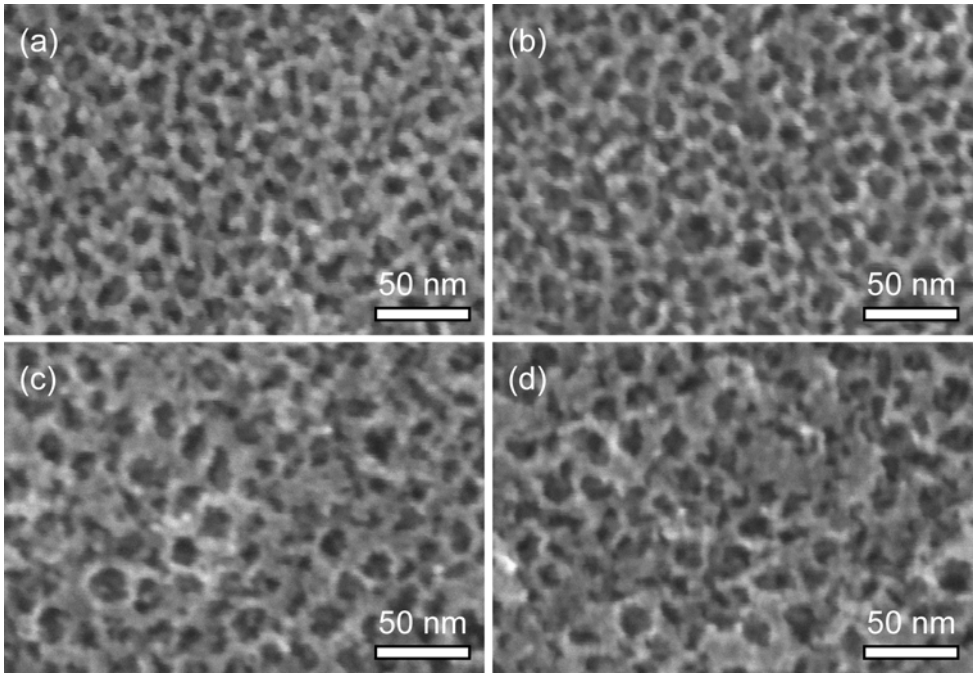

Figure S3 SEM images of Zn-doped SnO_2 monoliths after calcination at 600 ºC for 4h. Elemental compositions (κ = Zn/(Zn+Sn)) are (a) 0.08, (b) 0.12, (c) 0.17, and (d) 0.21, respectively.

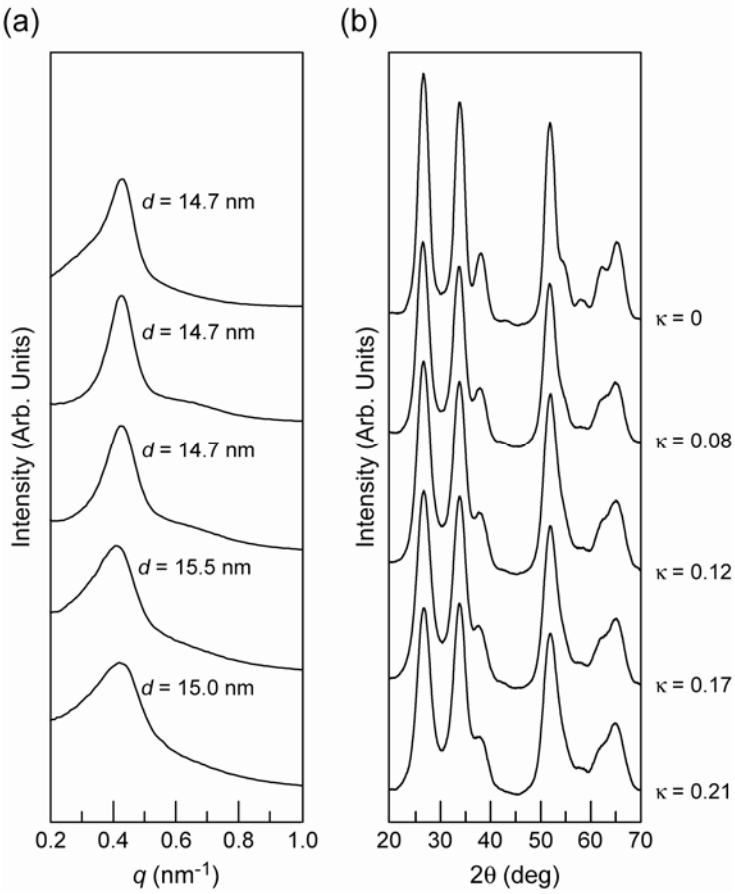

Figure S4 (a) Transmission small-angle X-ray scattering (SAXS) and (b) wide-angle XRD profiles of Zn-doped SnO_2 monoliths with various elemental compositions (κ = Zn/(Zn+Sn)) calcined at 600 ºC for 4h.

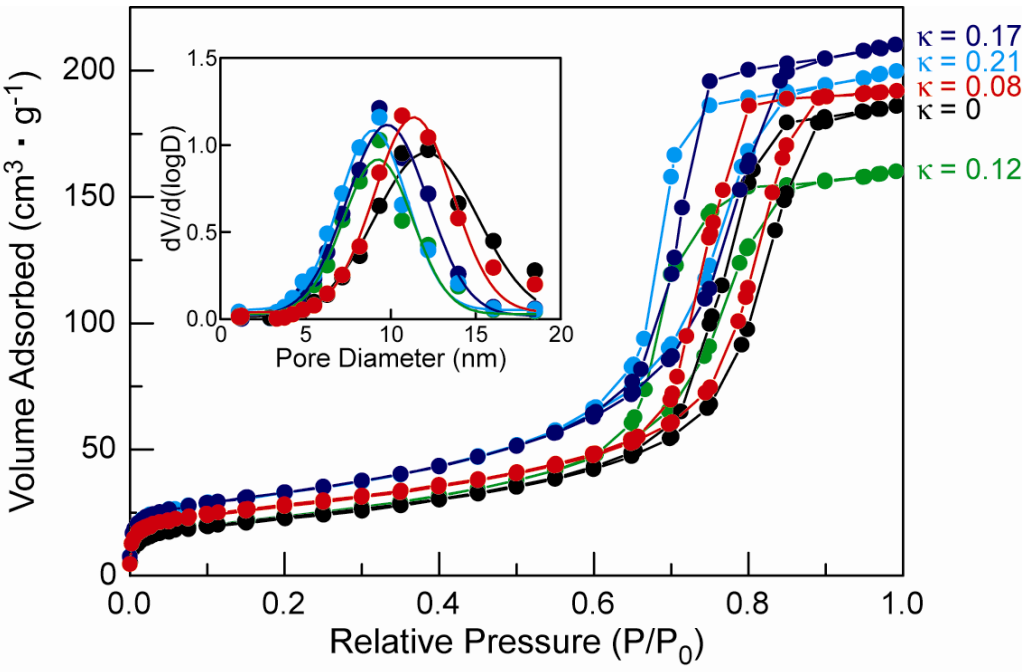

Figure S5 N_2 adsorption-desorption isotherms of Zn-doped SnO_2 monoliths with various elemental compositions (κ = Zn/(Zn+Sn)), which were calcined at 600 ºC for 4 h. Inset shows the pore-size distribution calculated by the BJH method from the adsorption brunch of isotherms. The fitted normal distribution functions are also noted.

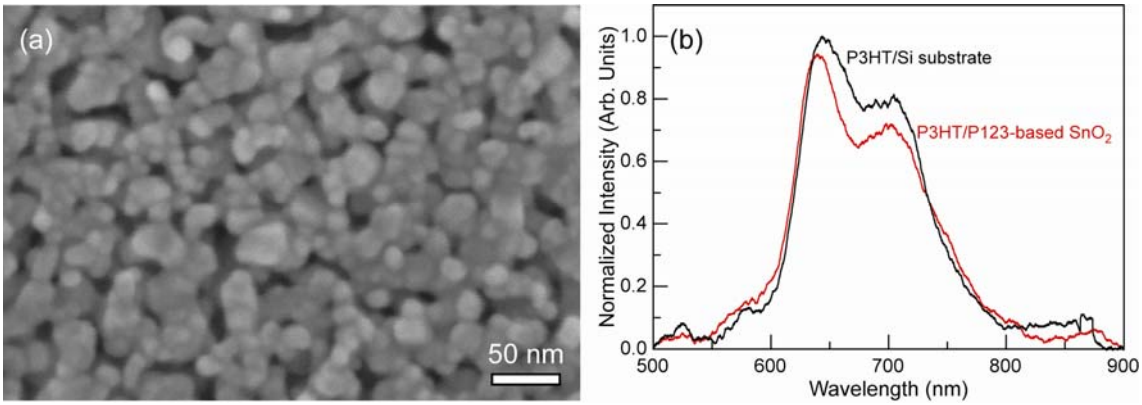

Figure S6 (a) SEM image of Pluronic P123-based mesoporous SnO_2 thin film calcined at 600 ºC for 4h. (b) Steady state photoluminescence spectra of P3HT spin coated on the Pluronic P123-based mesoporous SnO_2 thin film.