Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

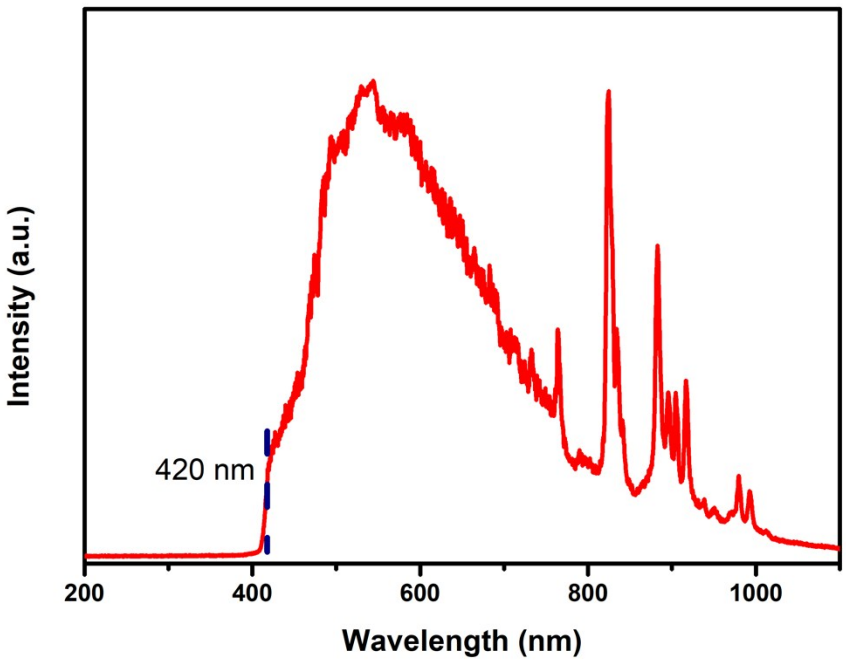

Fig. S1 The spectrum of filter (λ>420 nm)

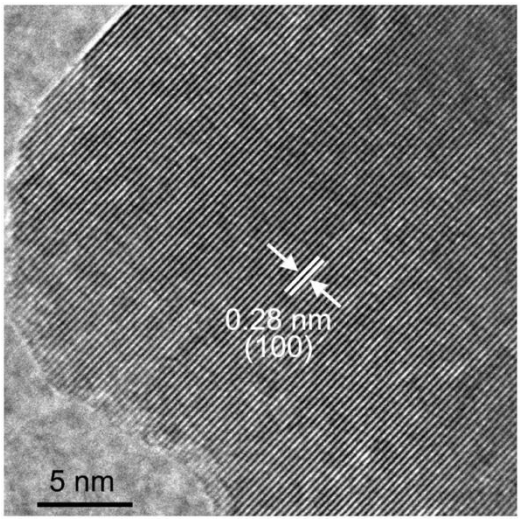

Fig. S2 A single nanosheet of flower-like ZnO with exposed (100) plane.

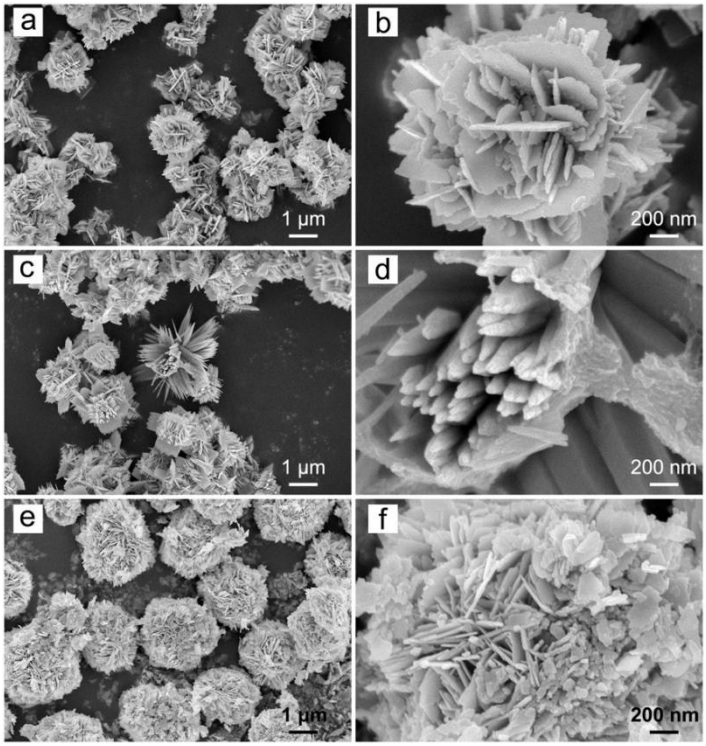

Fig. S3 SEM of ZnO under different concentration of NaOH when the reaction temperature was increased to 50℃.
(a-b 2:6, c-d 2:8, e-f 2:5)

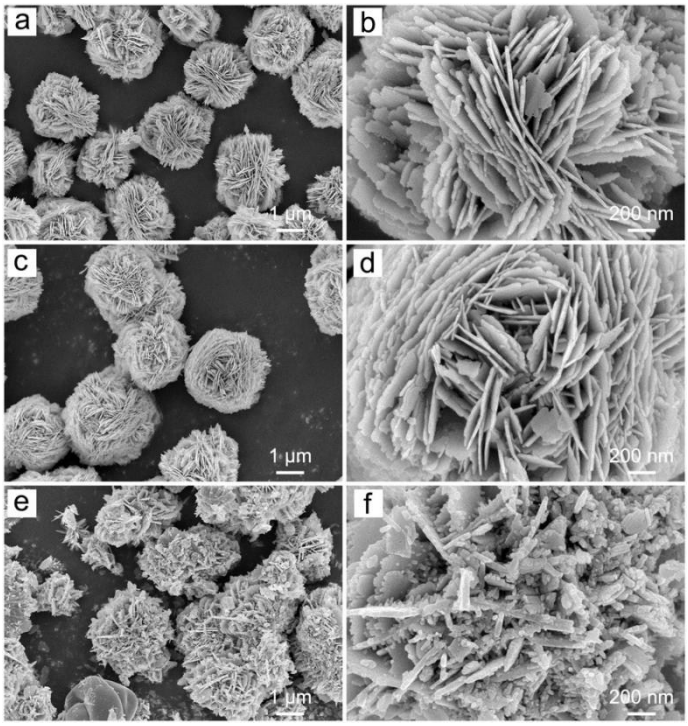

Fig. S4 SEM of ZnO at higher concentration and different proportion of NaOH when the reaction temperature is kept at 40℃.
(a-b 1:5, c-f 1:6, e-f 1:8)

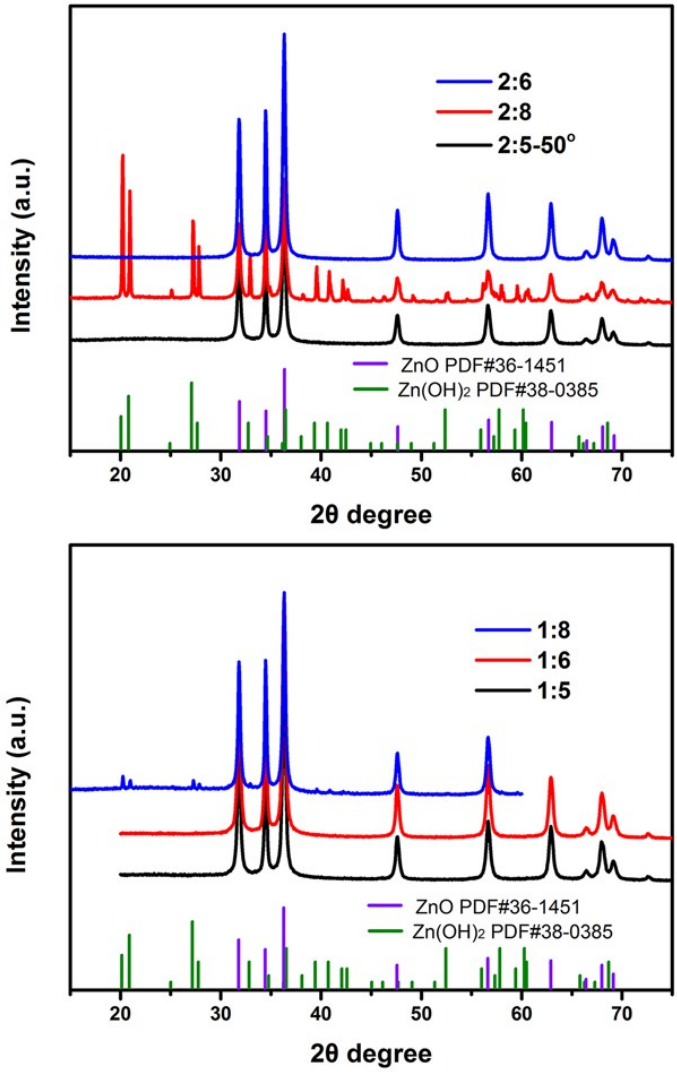

Fig. S5 XRD of the ZnO in Fig S2 and S3.

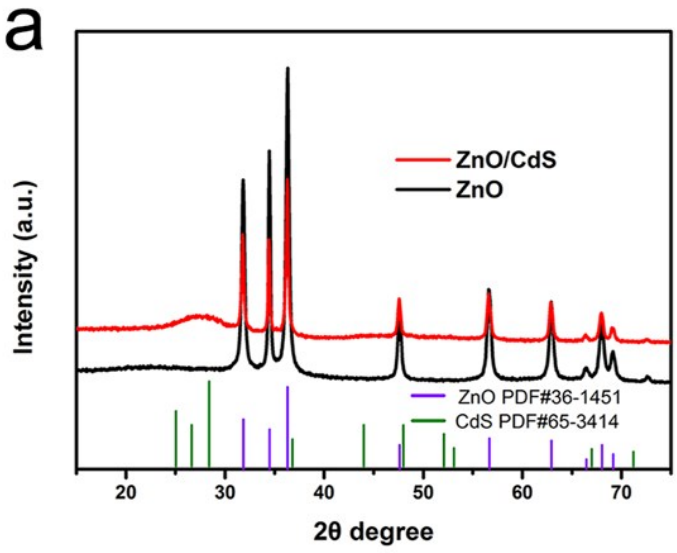

Fig. S6 XRD patterns of ZnO and ZnO/CdS in figure 3.

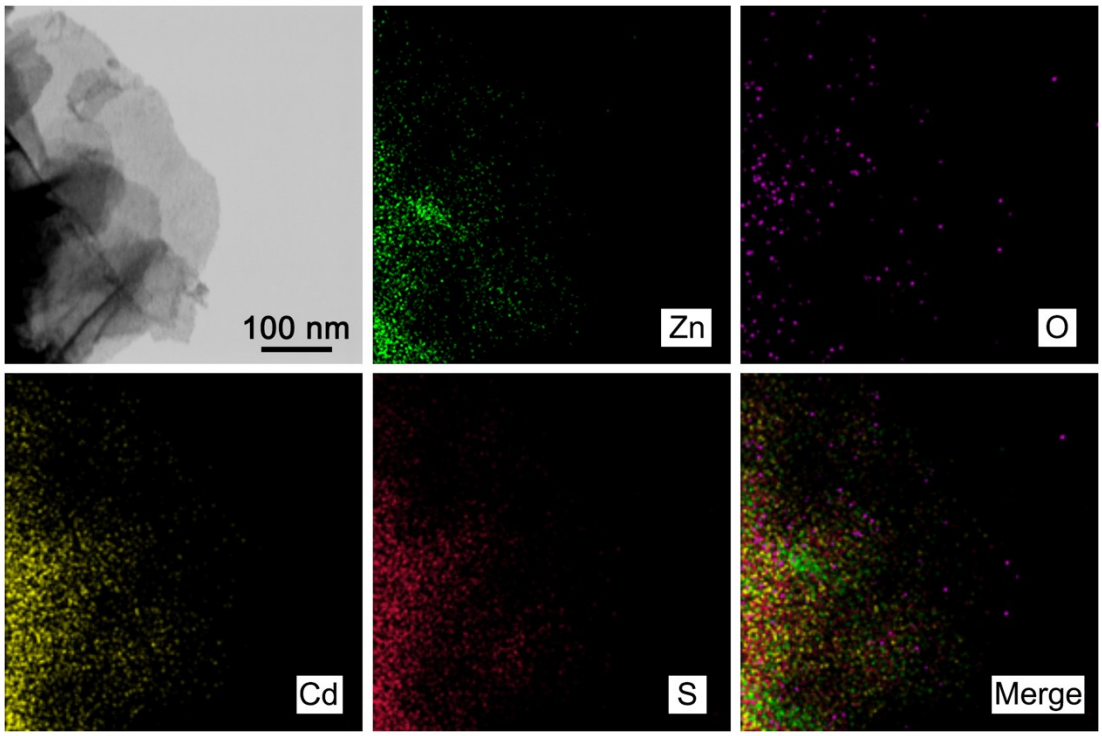

Fig. S7 EDS mapping of edge area of ZnO/CdS nanoflower.

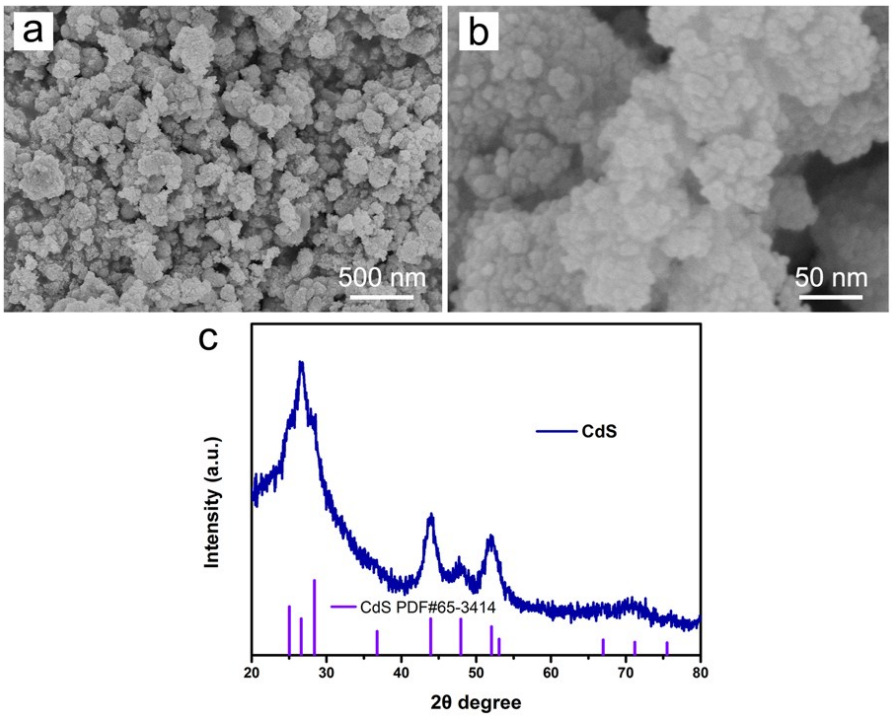

Fig. S8 SEM (a-b) and XRD (c) of the CdS powder.

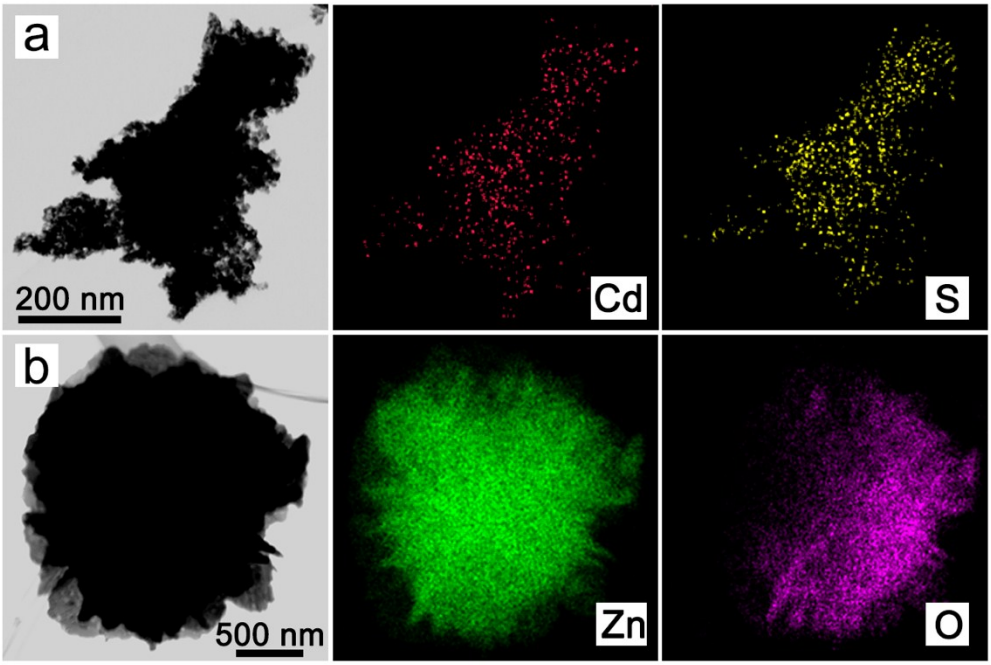

Fig. S9 EDS mapping of CdS nanoparticles and ZnO flower.

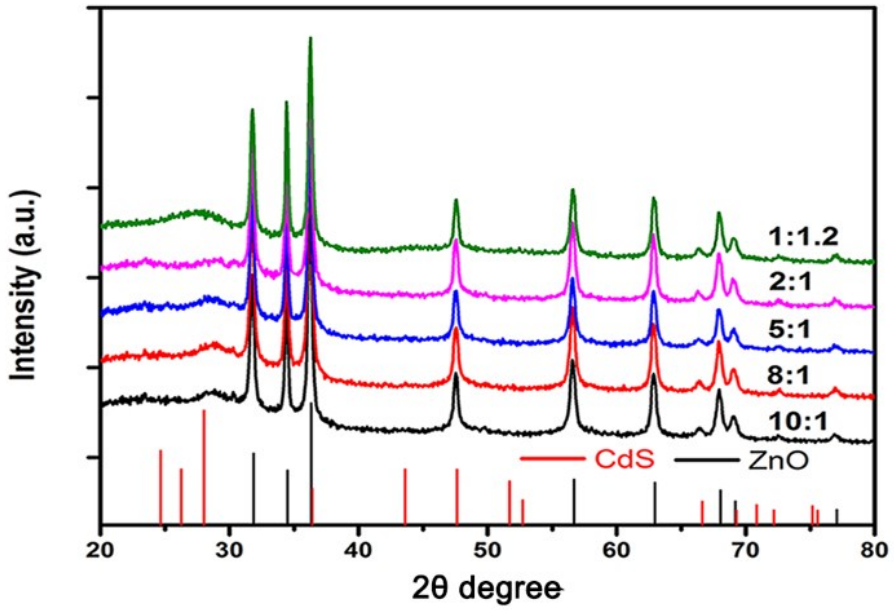

Fig. S10 XRD patterns of products in figure 4.

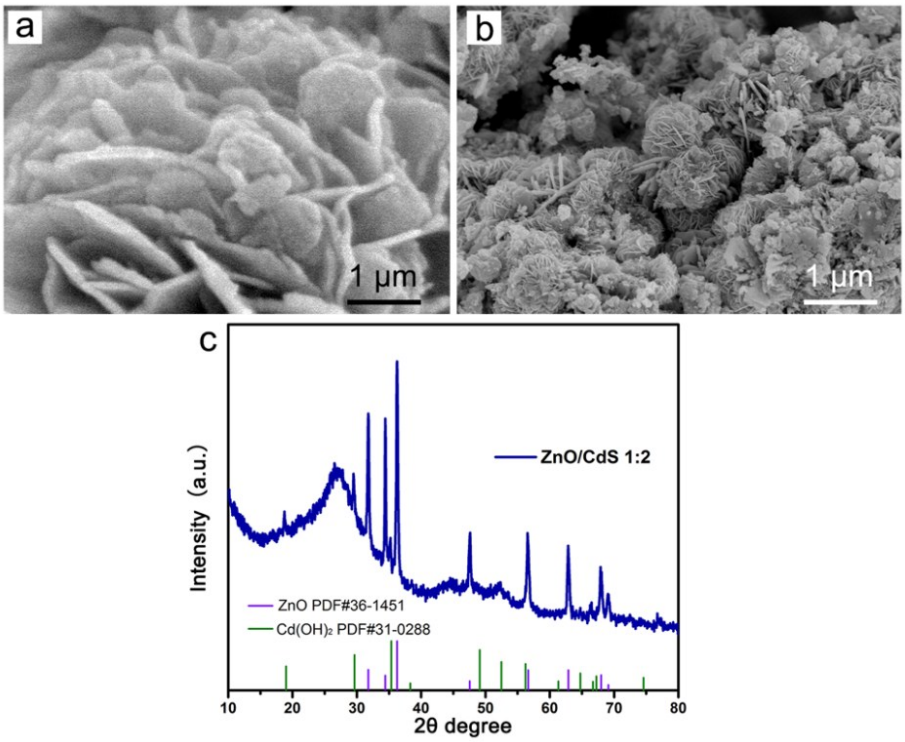

Fig. S11 SEM (a-b) and XRD (c) of ZnO/CdS when the ratio is 1:2.

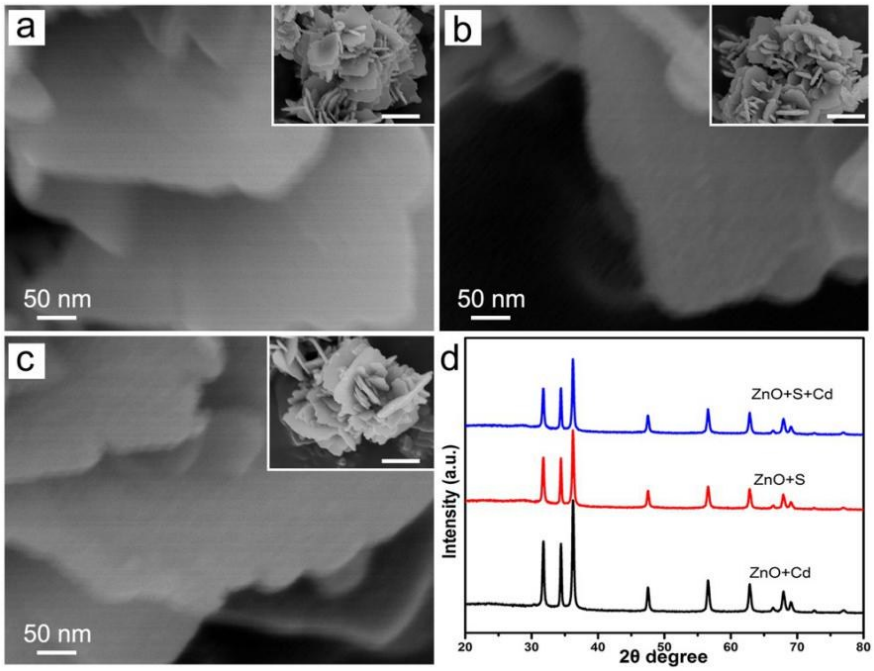

Fig. S12 SEM (a-c) and XRD (d) of the products when we changed the load order of S^{2-} and Cd^{2+}.
(a-ZnO+S, b-ZnO+Cd, c-ZnO+S+Cd)

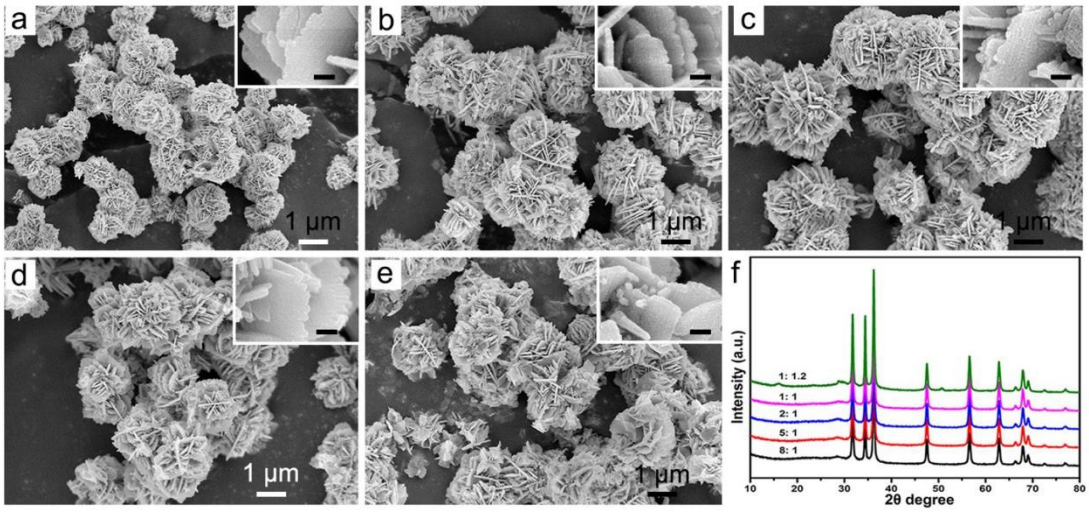

Fig. S13 SEM (a-e) and XRD (f) of the products at different reaction concentration ratio of S and Cd when we changed the load order of S^{2-} and Cd^{2+}. (a-8:1,b-5:1,c-2:1,d-1:1,e-1:1.2)

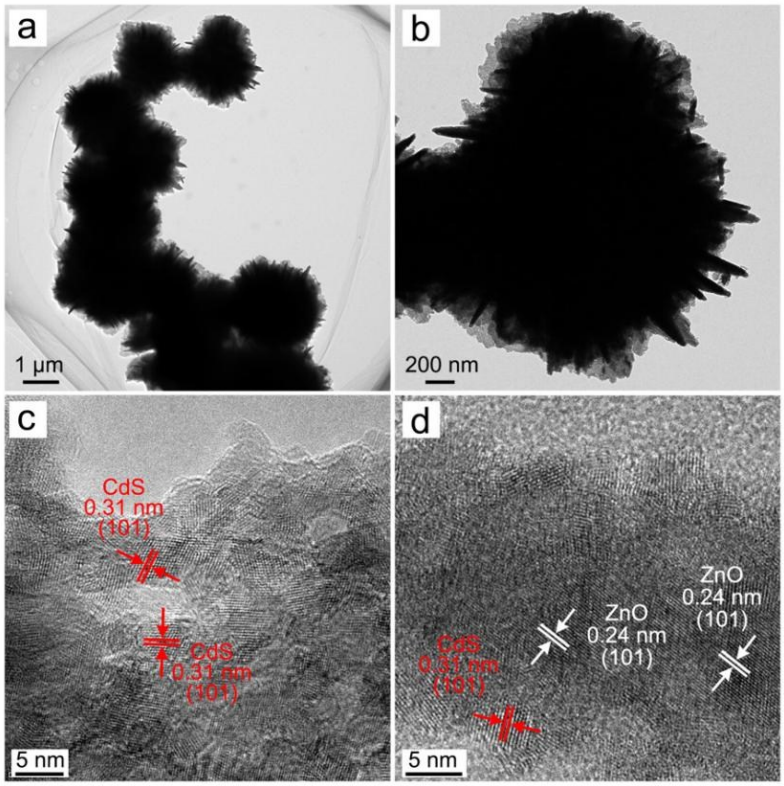

Fig. S14 TEM of ZnO/CdS heterostructures.

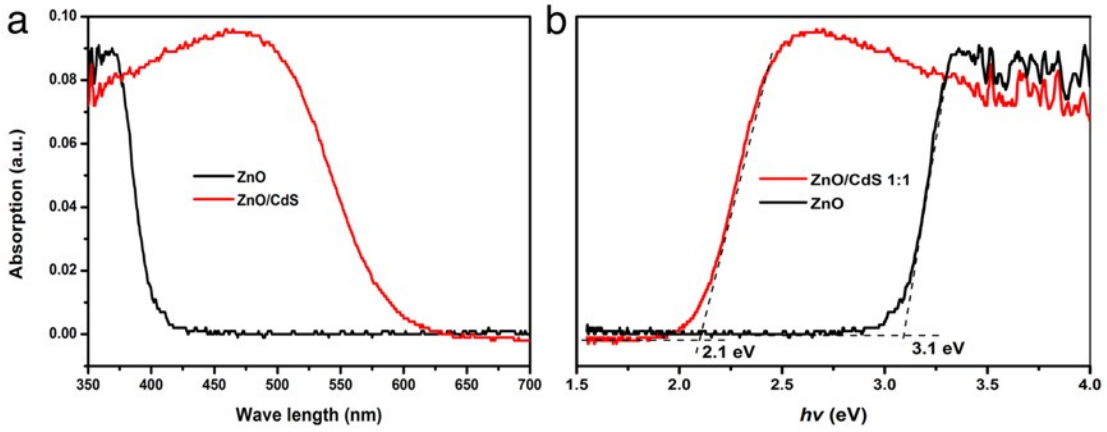

Fig. S15 UV-vis absorption spectra and optical band gap of ZnO and ZnO/CdS 1:1.

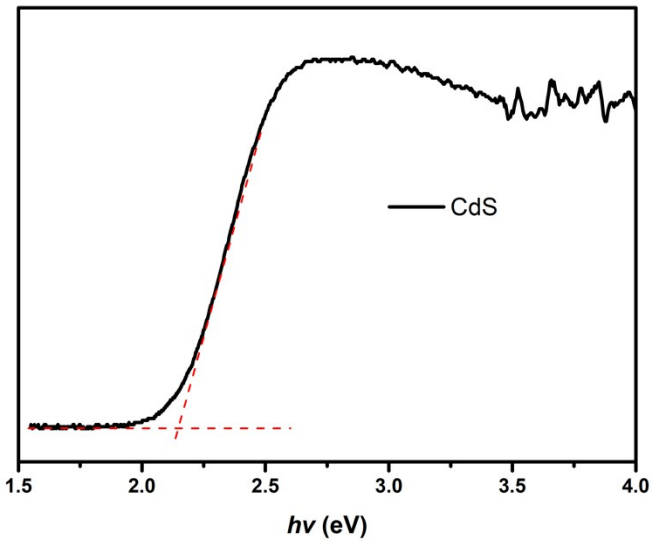

Fig. S16 Optical band gap of CdS.

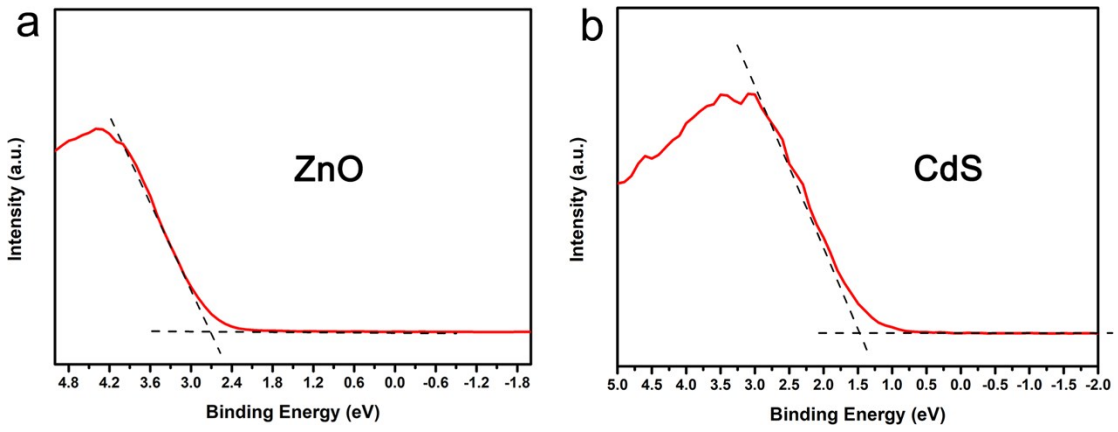

Fig. S17 XPS valence spectra of ZnO and CdS.

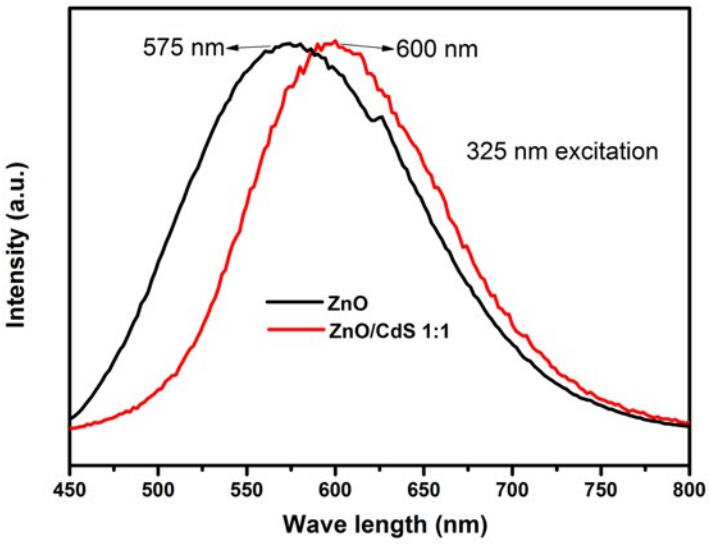

Fig. S18 Photoluminescence spectra of ZnO and ZnO/CdS 1:1 under 325 nm excitation.

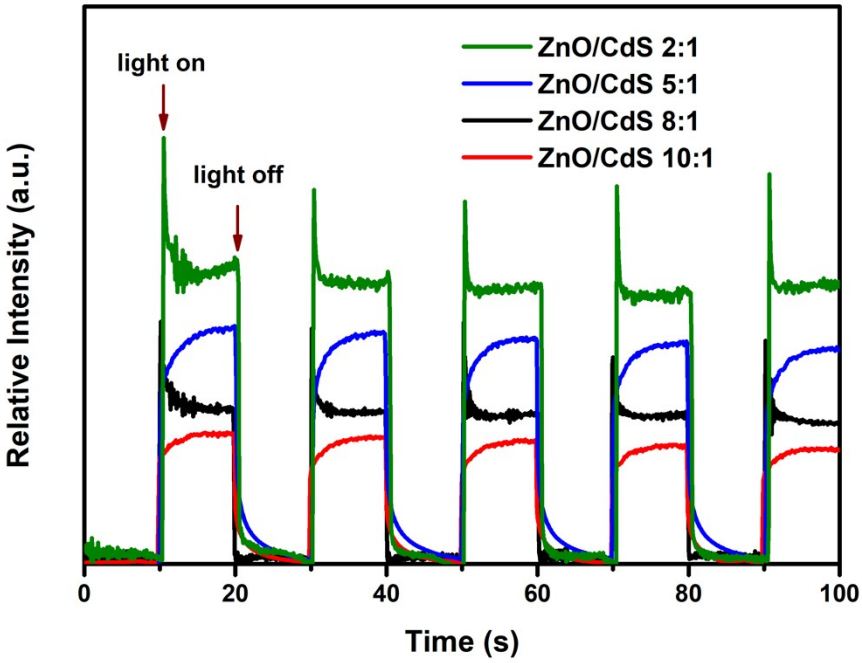

Fig. S19 Photocurrent responses of ZnO/CdS (2:1, 5:1, 8:1, 10:1) under visible light (λ>420 nm) irradiation.