Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Thermally stable and hydrophilic $CsPbBr_3$/mPEG-NH_2 nanocrystals with enhanced aqueous fluorescence for cell imaging

*Qi-Bao Yan[a], Ning Bao[b] and Shou-Nian Ding[a]**

[a]*Jiangsu Province Hi-Tech Key Laboratory for Bio-medical Research, School of Chemistry and Chemical Engineering, Southeast University, Nanjing 211189, China*

[b]*School of Public Health, Nantong University, 226019 Nantong, Jiangsu, China*

**E-mail: snding@seu.edu.cn.*

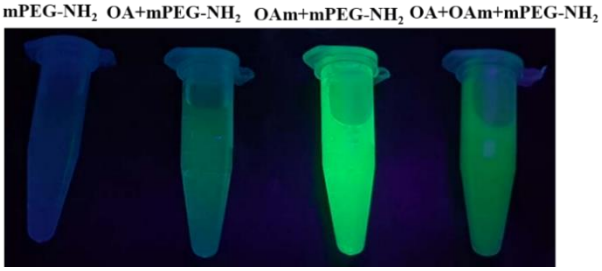

Figure S1. The PL image of $CsPbBr_3$ NCs aqueous solution (0.5 mg mL^{-1}) prepared via using different combinations of ligand.

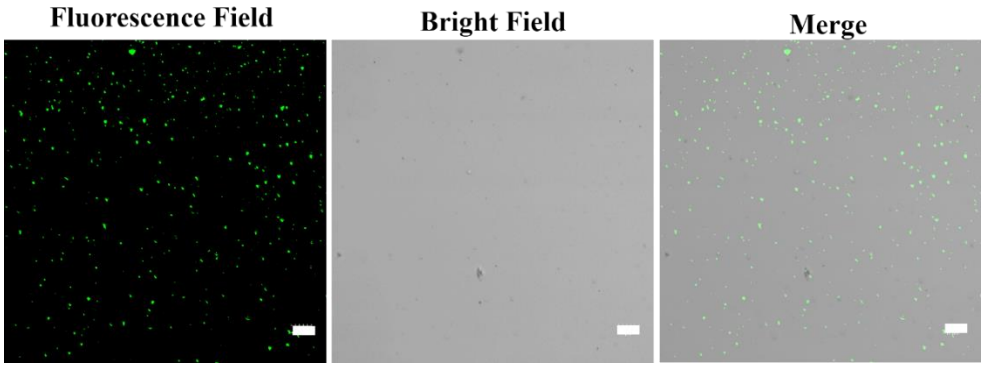

Figure S2. The confocal fluorescence image of $CsPbBr_3$/mPEG-NH_2 NCs. The scale bars are 5 μm.

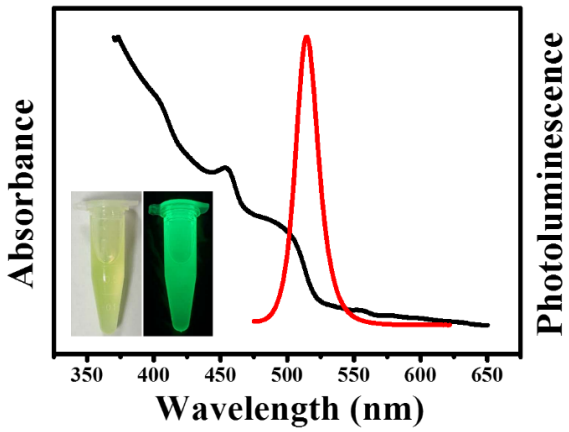

Figure S3. The UV/vis absorption and PL spectra of $CsPbBr_3$ NCs prepared by using oleic acid and oleylamine. The inset exhibited the optical image of corresponding sample in daylight (left) and under 365 nm UV light (right).

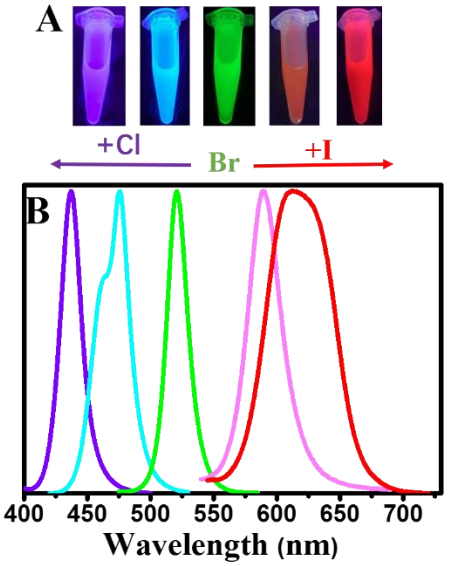

Figure S4. The (A) optical images of $CsPbX_3$/mPEG-NH_2 NCs with different halide compositions and the (B) PL spectra of the corresponding samples.

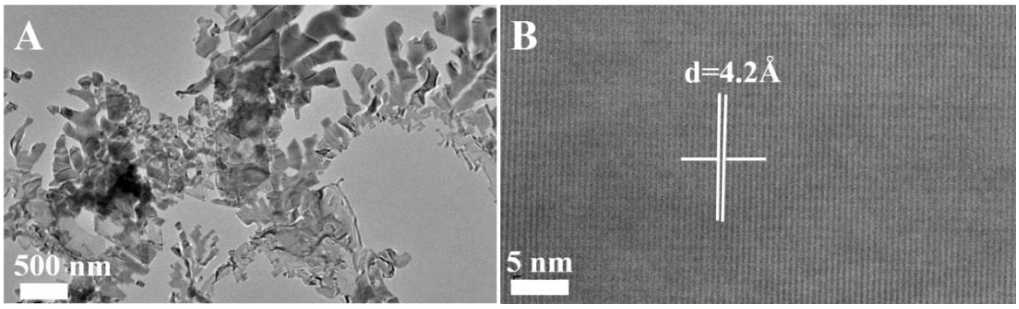

Figure S5. The (A) TEM and (B) HR-TEM images of $CsPbBr_3$/mPEG-NH_2 NCs aqueous solution after three days.

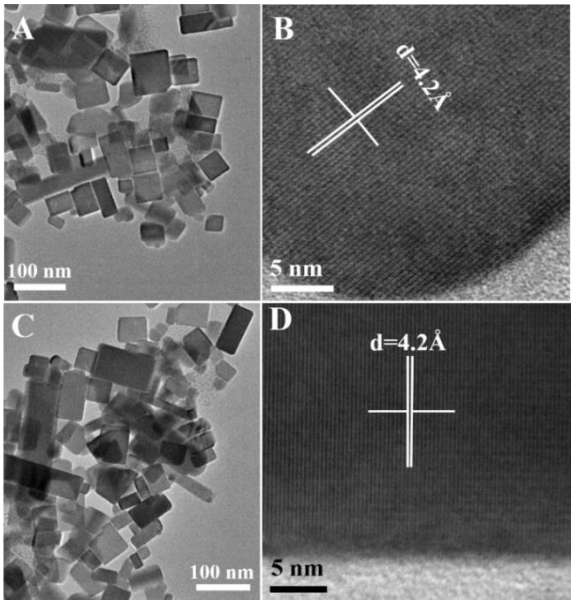

Figure S6. The TEM and HR-TEM images of $CsPbBr_3$/mPEG-NH_2 NCs toluene solution (A, B) at initial stage and (C, D) one week later.

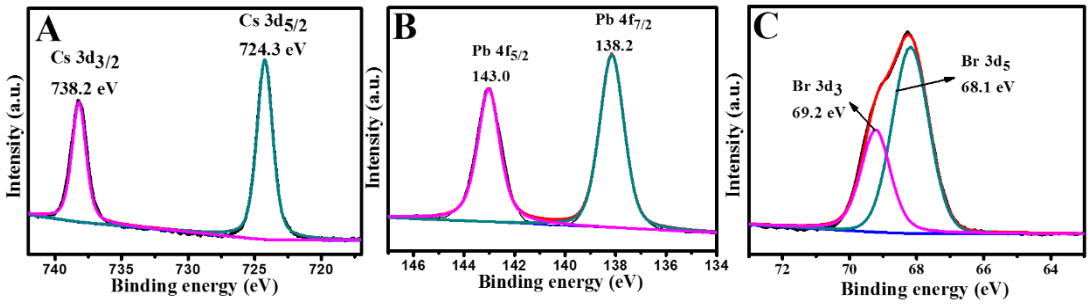

Figure S7. The high-resolution XPS analysis corresponding to (A) Cs 3d, (B) Br 3d and (C) Pb 4f, separately.

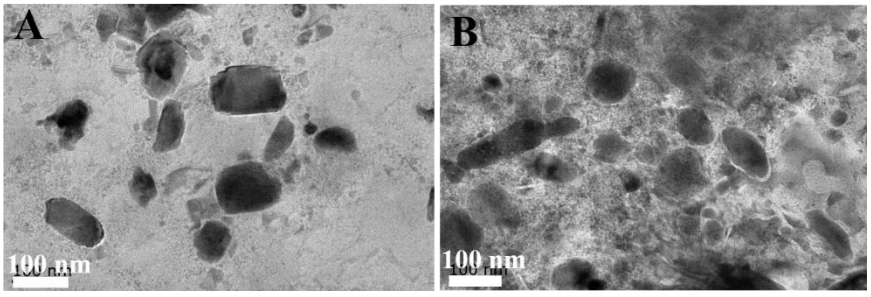

Figure S8. The negative stained TEM images of aqueous solution of $CsPbBr_3$/mPEG-NH_2 NCs synthesized with the optimum amount of mPEG-NH_2 at initial stage and after one week.

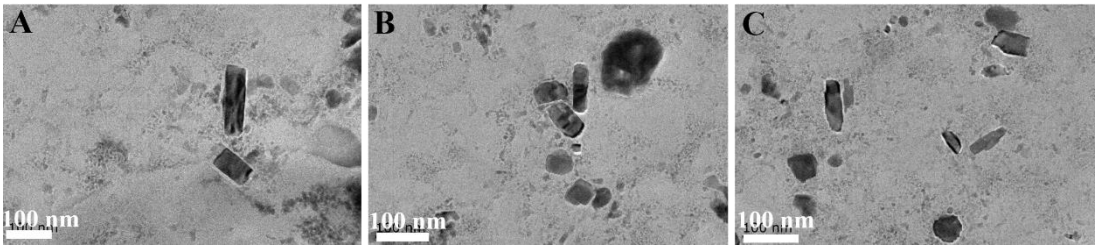

Figure S9. The negative stained TEM images of $CsPbBr_3$/mPEG-NH_2 NCs prepared by using different concentrations of mPEG-NH_2 (A: 6 mg mL^{-1}, B: 8 mg mL^{-1}, C: 10 mg mL^{-1}).

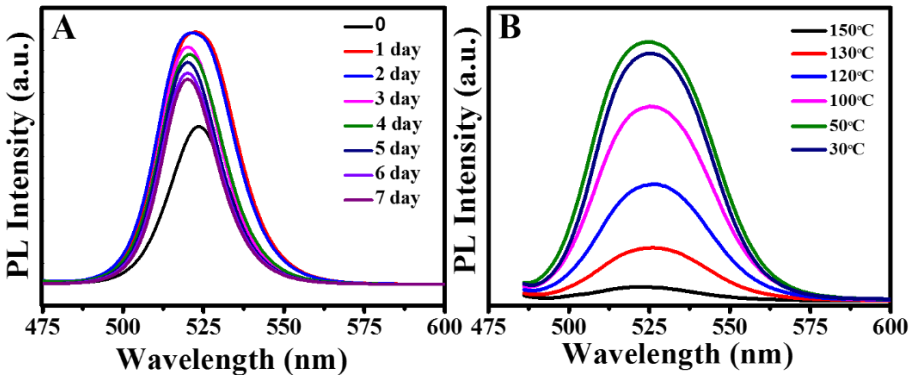

Figure S10. The (A) time-dependent PL spectra of 0.5 mg mL^{-1} $CsPbBr_3$/mPEG-NH_2 NCs in water. The (B) temperature-dependent PL spectra of $CsPbBr_3$/mPEG-NH_2 NCs powders.

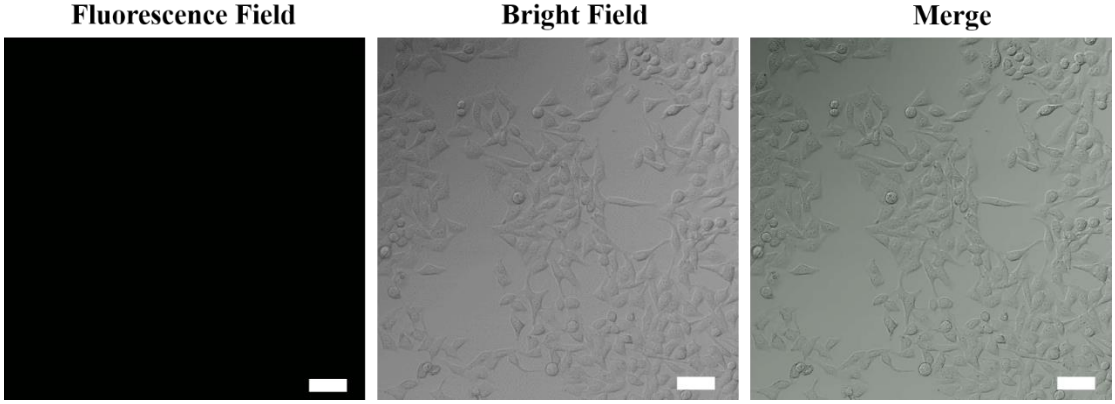

Figure S11. The confocal fluorescence image of HepG2 cells incubated without $CsPbBr_3$/mPEG-NH_2 NCs. The scale bars are 40 μm.

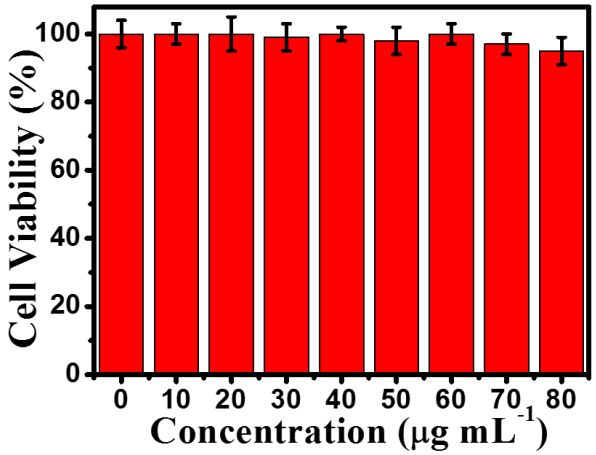

Figure S12. Viability of HepG2 cells at various $CsPbBr_3$/mPEG-NH_2 NCs concentrations.

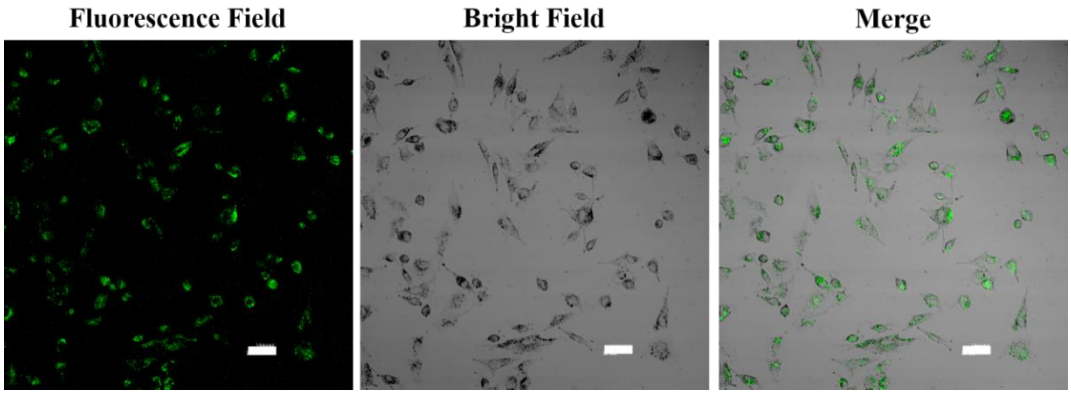

Figure S13. The confocal fluorescence image of A549 cells incubated with $CsPbBr_3$/mPEG-NH_2 NCs for 24 h. The scale bars are 50 μm.

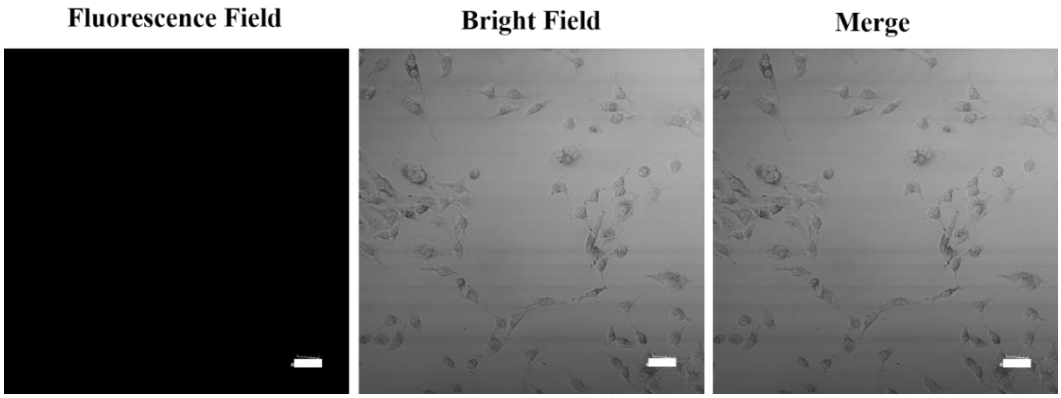

Figure S14. The confocal fluorescence image of A549 cells incubated without $CsPbBr_3$/mPEG-NH_2 NCs for 24 h. The scale bars are 50 μm.