

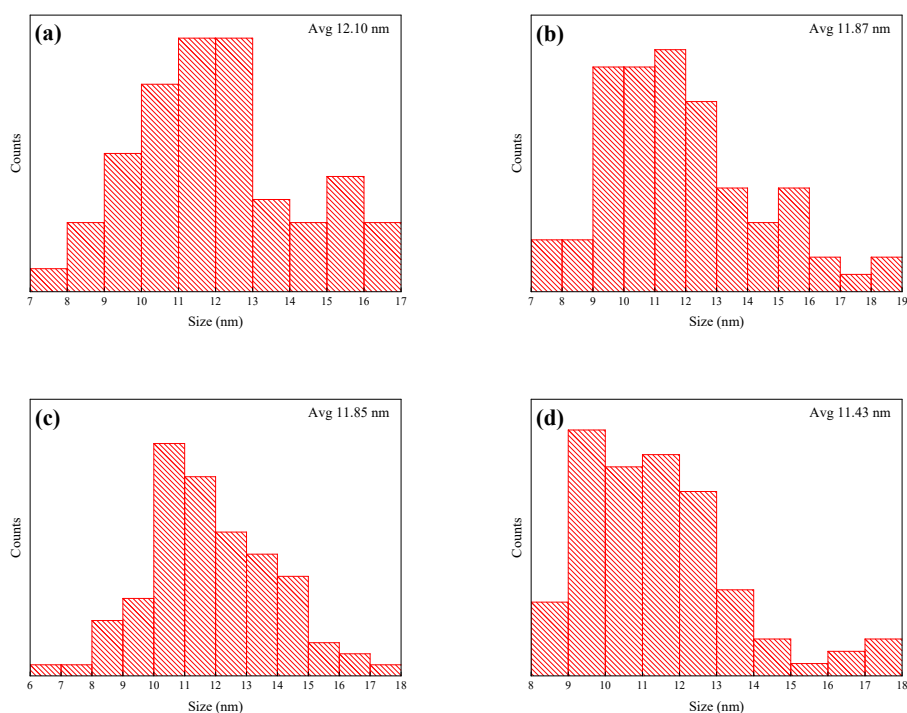
## Electronic Supporting Information (ESI)

### Surface Ligand Engineering of Perovskite Nanocrystals with a Conjugated Sulfonate Ligand for Light-Emitting Applications

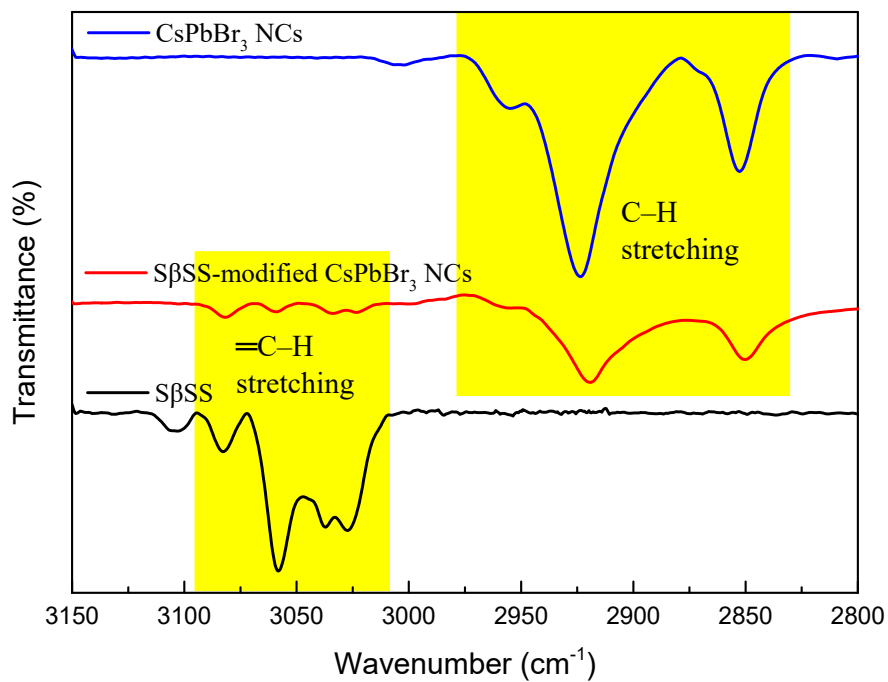
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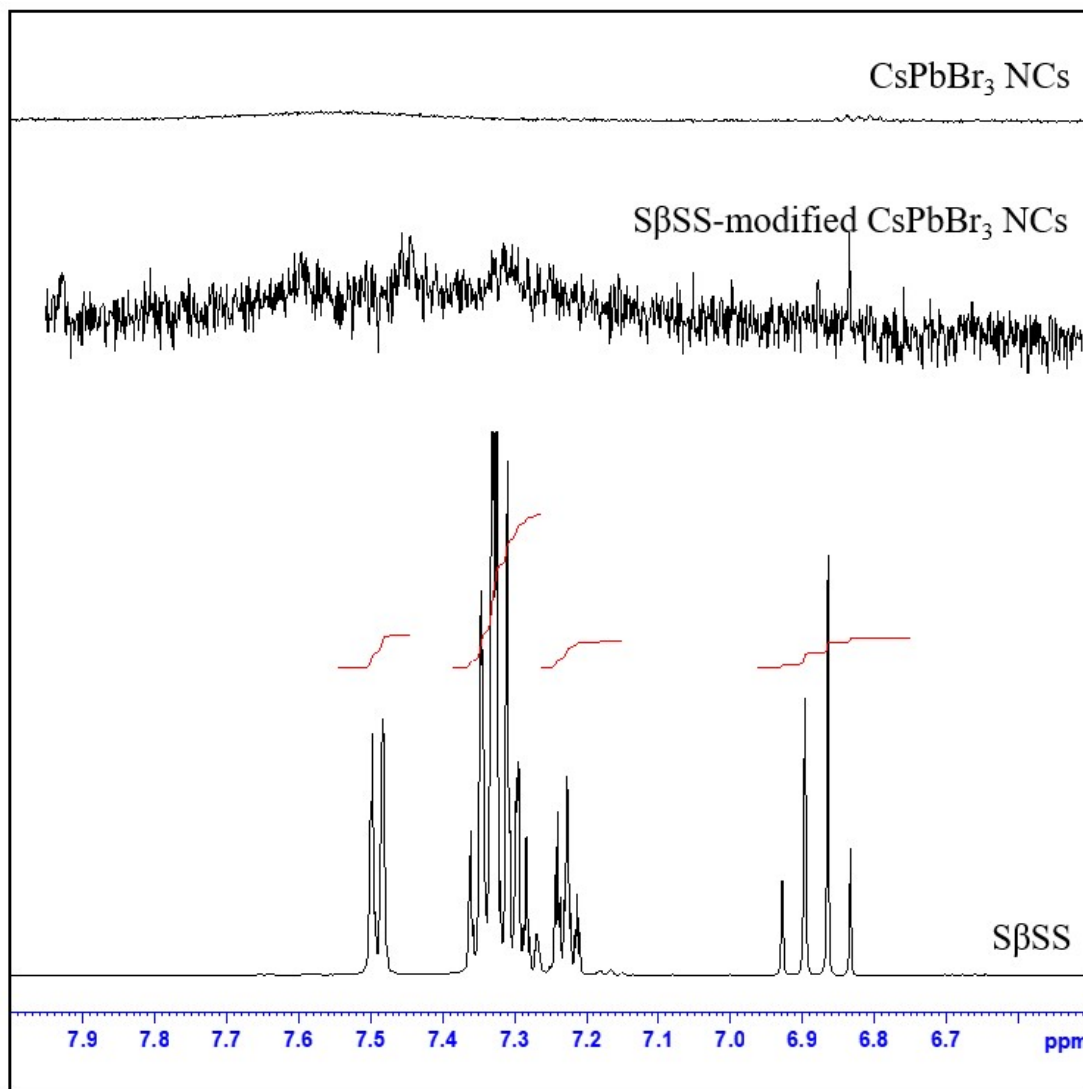
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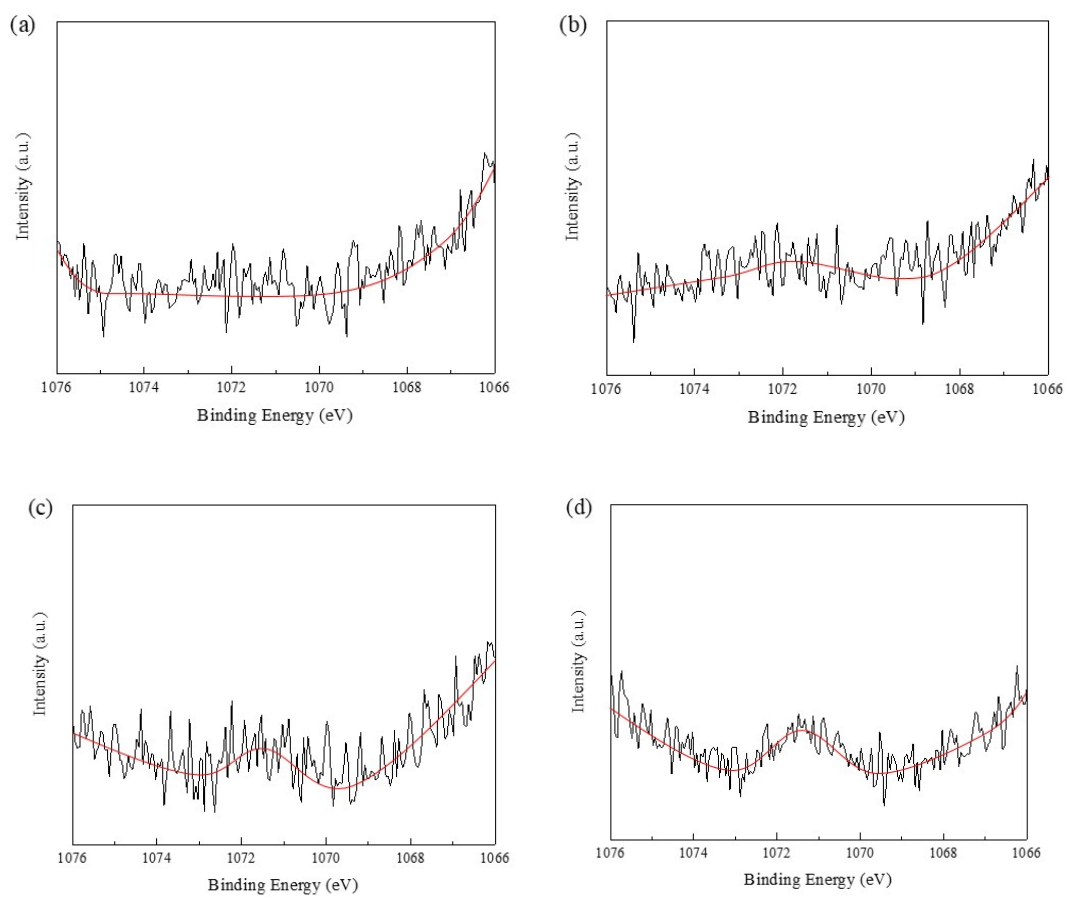
**Fig. S1.** Size distribution histograms of the pristine and SβSS-modified CsPbBr<sub>3</sub> NCs incorporating (a) 0, (b) 5, (c) 10, and (d) 20 mg of SβSS ligand.



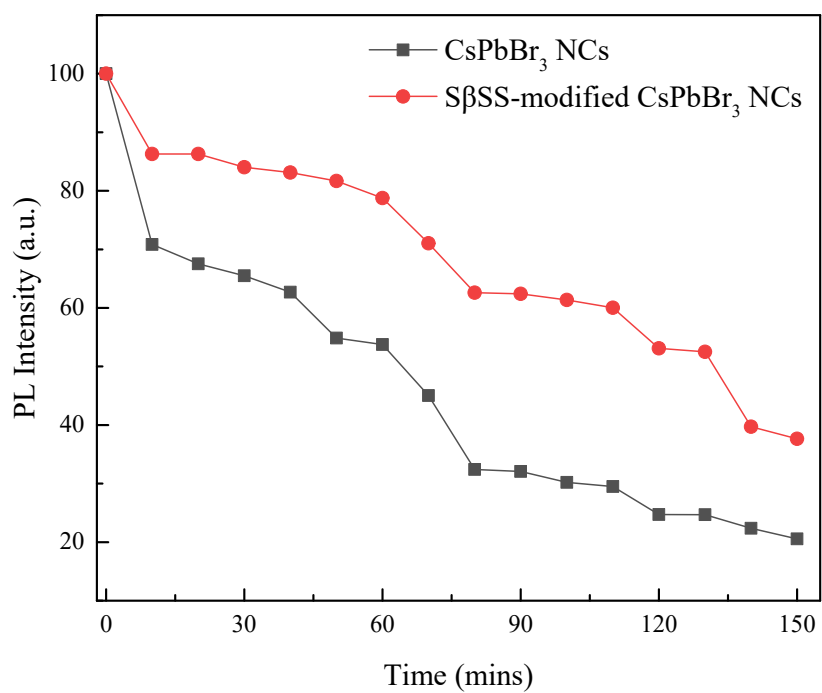
**Fig. S2.** FT-IR spectra corresponding to SβSS, the pristine and SβSS-modified CsPbBr<sub>3</sub> NCs (10 mg).



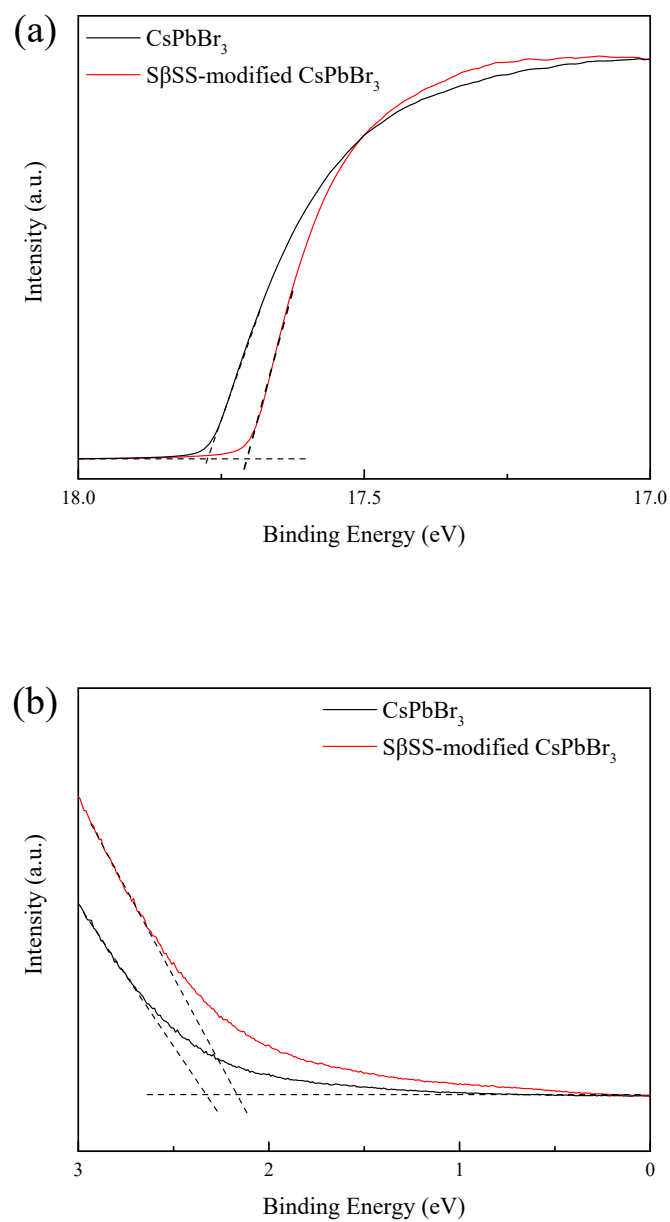
**Fig. S3.** NMR spectra corresponding to SβSS, the pristine and SβSS-modified CsPbBr<sub>3</sub> NCs (10 mg).



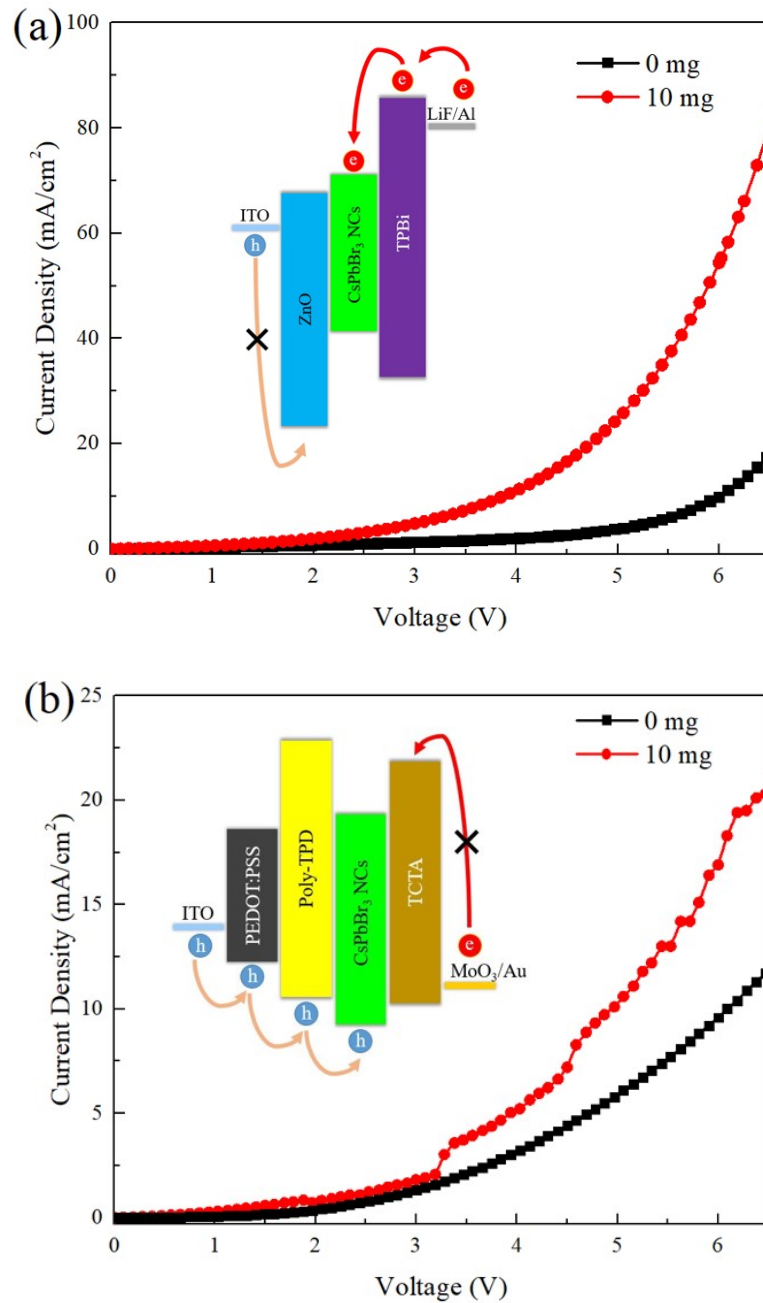
**Fig. S4.** XPS spectra of Na  $1s$  in the (a) pristine and S $\beta$ SS-modified CsPbBr<sub>3</sub> NCs with (b) 5, (c) 10, and (d) 20 mg of S $\beta$ SS.



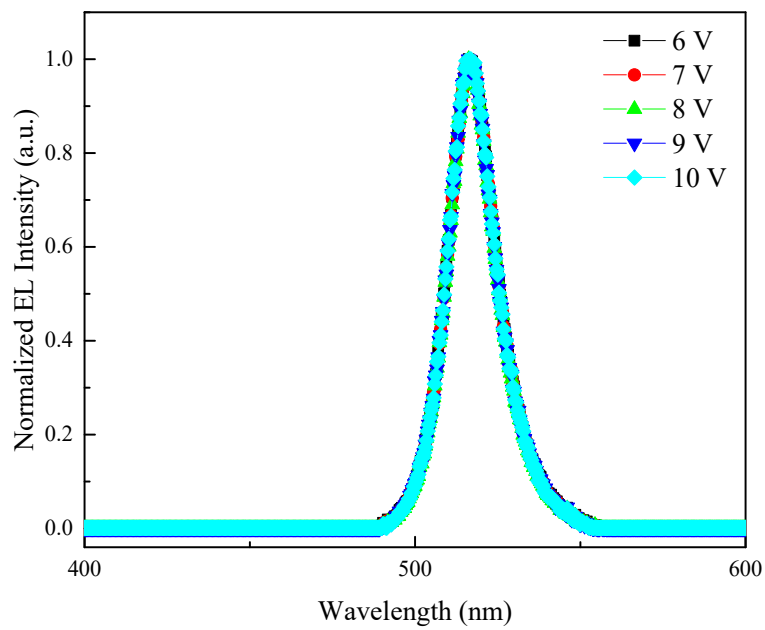
**Fig. S5.** Time-dependent PL intensity of the pristine and SβSS-modified CsPbBr<sub>3</sub> NCs (10 mg) at 100 °C for 150 min.



**Fig. S6.** UPS spectra of the pristine and SβSS-modified CsPbBr<sub>3</sub> NCs (10 mg) in the (a) cut-off and (b) valence band regions.



**Fig. S7.** Current density-voltage characteristics of (a) electron-only and (b) holey-only devices containing the pristine or  $\beta$ SS-modified CsPbBr<sub>3</sub> NCs (10 mg).



**Fig. S8.** EL spectra of the S $\beta$ SS-modified CsPbBr<sub>3</sub> NCs (10 mg) under different bias voltages of 6–10 V.