

### Supplementary Information

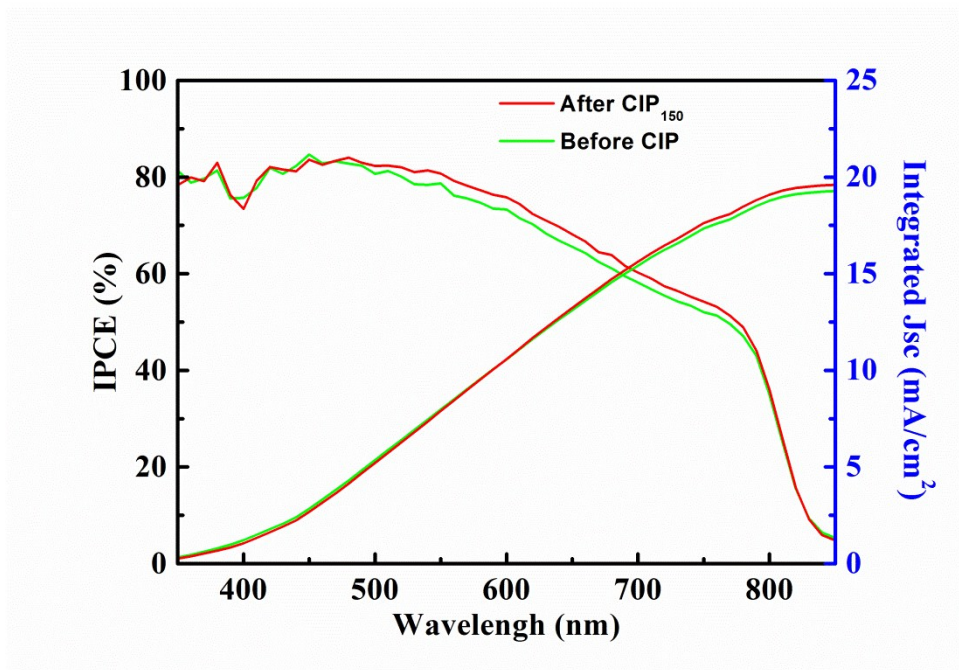


Fig. S1 IPCE spectra of the champion cell before and after CIP treatment.

The photocurrent density of the champion device was checked by IPCE spectra. As shown in figure S1, the  $\text{FA}_x\text{MA}_{1-x}\text{PbI}_3$  based cell generates a photocurrent up to 840 nm, indicating the existence of  $\text{FAPbI}_3$  perovskite in the device. The integration of the IPCE spectra of the champion device with  $\text{CIP}_{150}$  treatment gives  $19.5 \text{ mA/cm}^2$ , which is in rather good agreement with the  $J_{\text{sc}}$  obtained from the J-V curve.