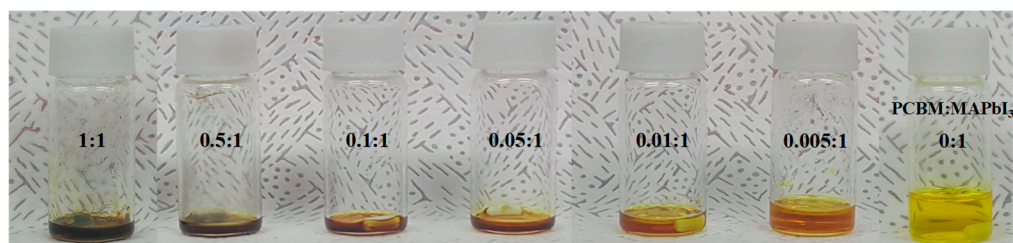
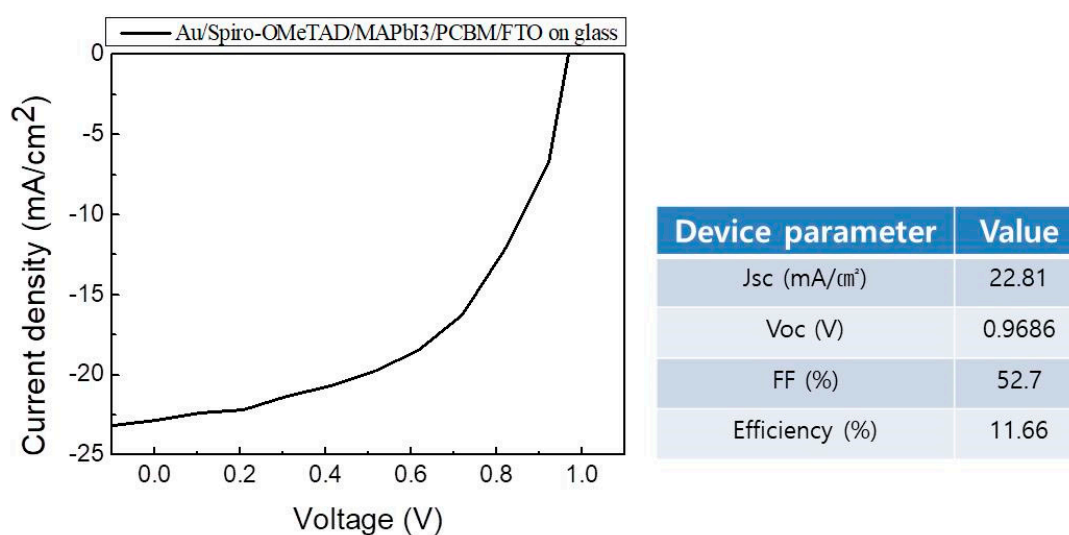


## Supplementary Materials



**Figure S1.** Photograph of the MAPbI<sub>3</sub> precursor solution. The mixed materials made using solutions with various PCBM additive concentrations (5, 10, 50, 100, 500, and 1000  $\mu$ L) and a 1000- $\mu$ L MAPbI<sub>3</sub> solution are presented in this figure. As shown in this figure, the pristine PCBM-MAPbI<sub>3</sub> precursor (0:1) solution exhibited a bright yellow color, and its color changed to dark brown with an increase in the PCBM concentration from 0.005 to 1.



**Figure S2.** J–V characteristics of the FTO/PCBM/MAPbI<sub>3</sub>/Spiro-OMeTAD/Au solar cells.

**Table S1.** Grain sizes (unit: Å) of the perovskite films.

Film	Bragg peak			
	002	004	006	400
MAPbI <sub>3</sub>	197.487	213.255	219.4	158.555
MAPbI <sub>3</sub> with PCBM	197.795	209.947	211.894	145.317