Supporting Information

High-Performance and High-Durability Perovskite Photovoltaic Devices Prepared Using Ethylammonium Iodide as an Additive

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Table S1. The time evolution of long-term PV parameters of PVSK cells, prepared using **EAI** as concentrations of (a) 0%, (b) 0.5% and (c) 1%, at 65℃ in the dark under Ar.

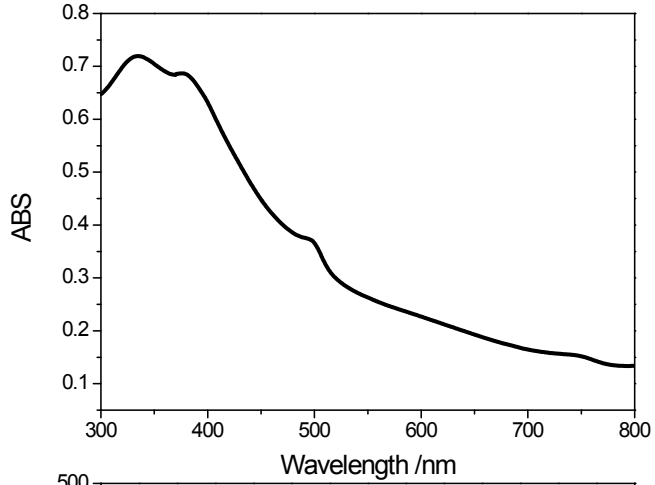
(a)		**0%**		
Time(hr)	J_{sc}(mA/cm^2)	V_{oc}(V)	FF(%)	PCE(%)
0	15.5	0.88	72.4	9.9
0.5	16.1	0.88	71.2	10.1
1	15.7	0.89	69.9	9.8
14	15.0	0.89	64.3	8.6
45	15.0	0.90	57.4	7.7
88	13.5	0.83	60.2	6.8
126	13.6	0.82	58.7	6.5
146	12.9	0.82	61.3	6.5
192	13.2	0.81	58.9	6.3
291	13.2	0.75	53.7	5.3
361	12.3	0.75	53.2	4.9
582	12.5	0.73	28.7	2.6

(b)		**0.5%**		
Time(hr)	J_{sc}(mA/cm^2)	V_{oc}(V)	FF(%)	PCE(%)
0	16.1	0.84	70.1	9.5
0.5	16.3	0.85	72.8	10.1
1	16.3	0.85	69.9	9.7
14	15.9	0.86	69.5	9.5
30	14.6	0.87	66.9	8.5
88	15.3	0.86	67.7	8.9
126	15.6	0.84	62.3	8.2
146	15.4	0.86	63.9	8.5
192	15.3	0.85	62.7	8.2
291	15.1	0.85	57.6	7.4

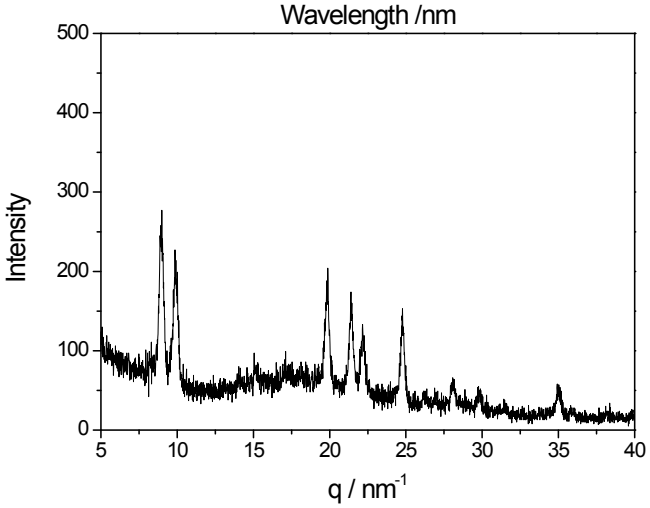
361	14.8	0.84	54.7	6.8
582	14.9	0.83	43.2	5.3

(c)		**1%**		
Time(hr)	J_{sc}(mA/cm^2)	V_{oc}(V)	FF(%)	PCE(%)
0	16.2	0.84	69.6	9.4
0.5	16.6	0.85	70.6	9.9
1	16.9	0.87	69.0	10.2
14	16.0	0.86	71.1	9.8
30	15.7	0.83	70.6	9.2
88	15.9	0.84	67.7	9.0
126	15.7	0.84	67.5	8.9
146	15.8	0.83	66.6	8.7
192	15.7	0.82	65.5	8.5
291	15.3	0.81	65.7	8.2
361	15.4	0.82	61.7	7.8
582	15.5	0.85	41.3	5.4

a)



b)



c)

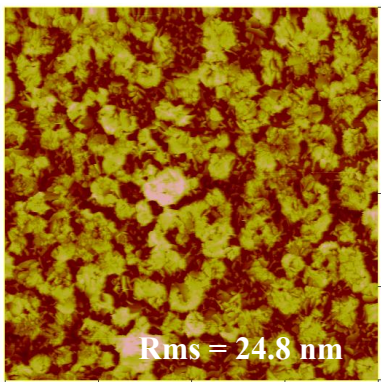


Figure S1. a)UV–Vis spectrum, b) XRD pattern, and c) AFM image of the **EA**PbI_xCl_{3-x} film.

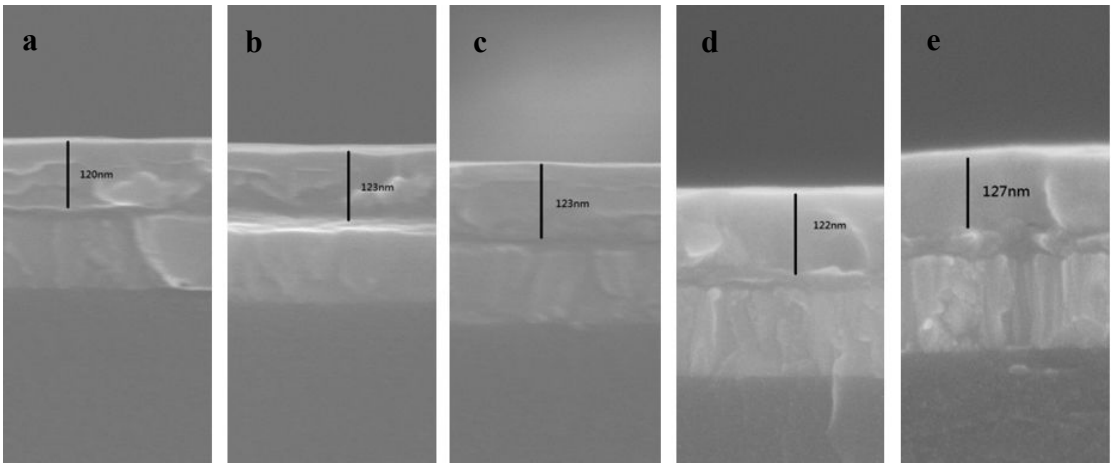


Figure S2. Cross-sectional SEM images of **MA**PbI_xCl_{3-x} perovskite films, prepared using **EAI** as an additive at concentrations of a) 0, b) 0.5, c) 1, d) 2.5, and e) 5%.

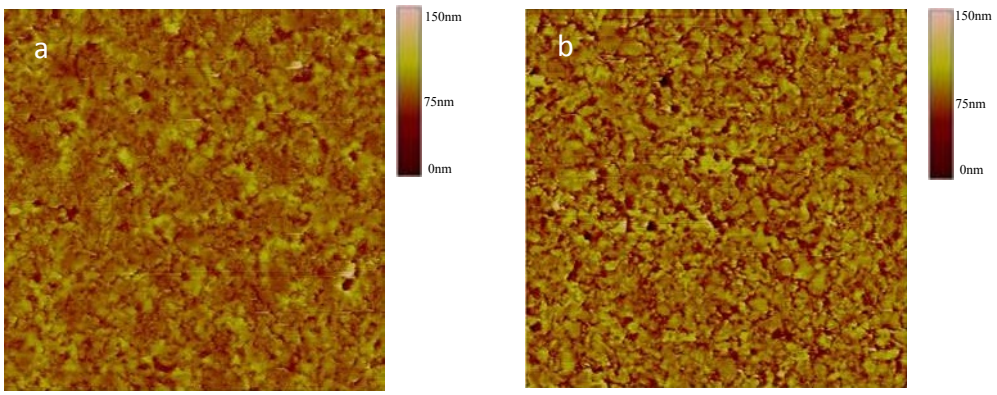
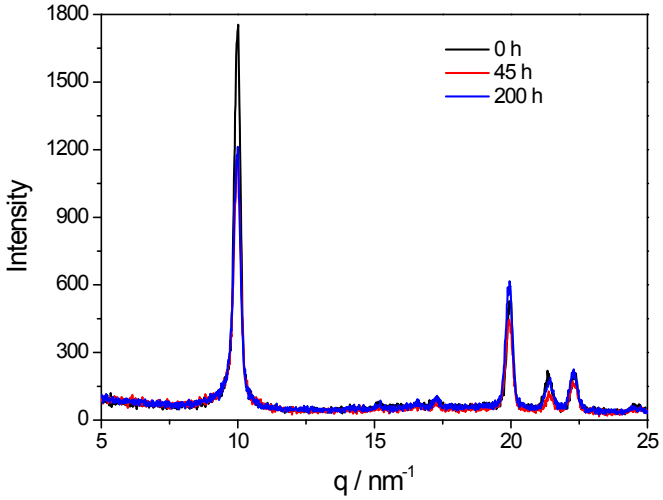
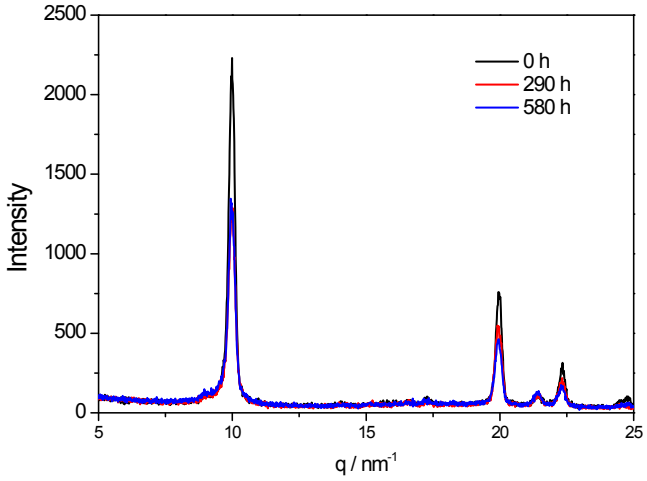


Figure S3. AFM topographical images (10 µm × 10 µm) of pristine **MA**PbI_xCl_{3-x} films prepared using **EAI** as an additive at concentrations of a) 2.5 and b) 5%.

a)


0 h
45 h
200 h
Intensity
q / nm-1

b)


0 h
290 h
580 h
Intensity
q / nm-1

c)

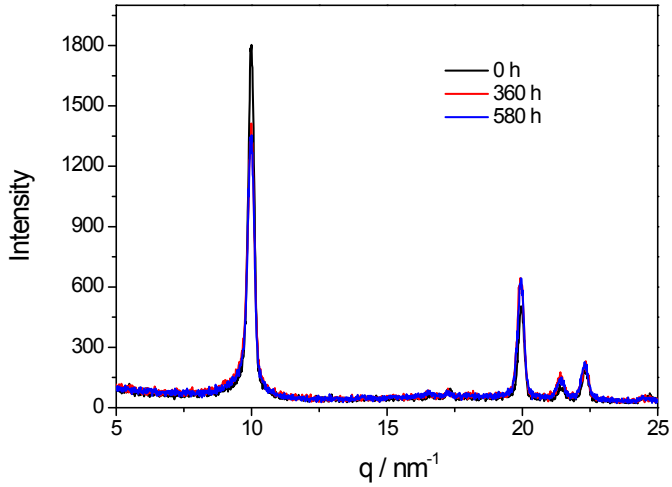
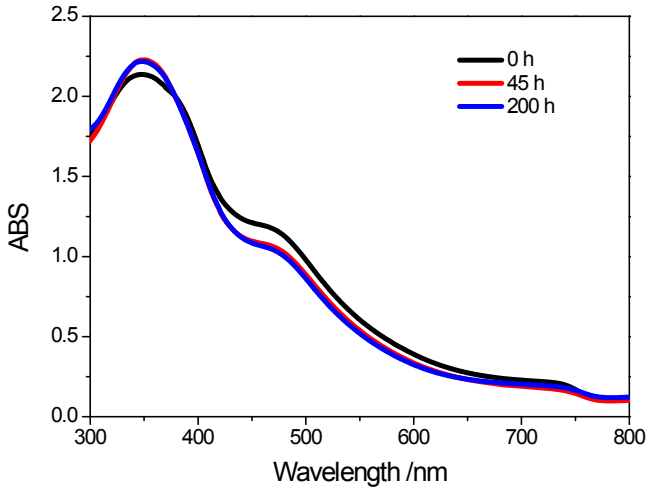
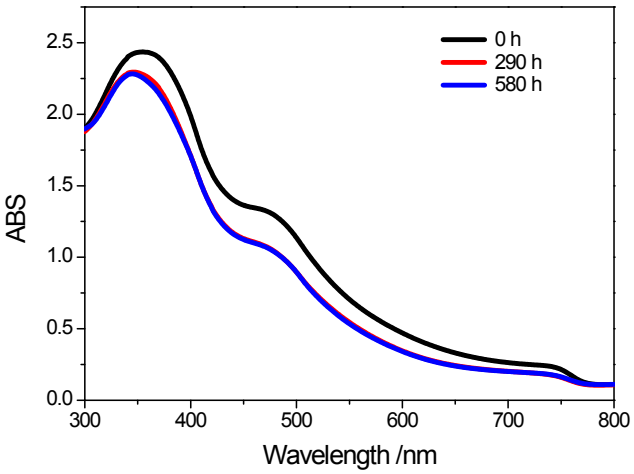

0 h
360 h
580 h
Intensity
q / nm-1

Figure S4. WAXS profiles of **MA**PbI$_x$Cl$_{3-x}$ perovskite films, prepared using **EAI** as an additive at concentrations of a) 0, b) 0.5, and c) 1%, after annealing at 65 °C for various periods of time.

a)



b)



c)

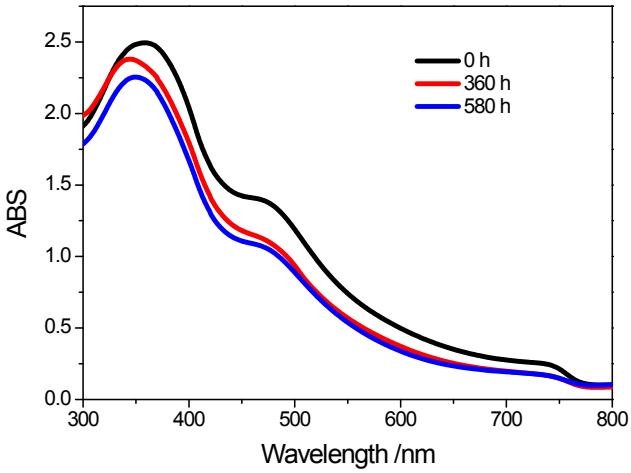


Figure S5. UV−Vis spectra of **MA**PbI_xCl_{3-x} perovskite films, prepared using **EAI** as an additive at concentrations of a) 0, b) 0.5, and c) 1%, after annealing at 65 °C for various periods of time.