

Table S1 Photovoltaic characteristics of FPSCs with different annealing durations.

Annealing durations	V_{oc} (V)	J_{sc} (mA/cm ²)	FF	PCE (%)
5 min	0.58	5.90	0.48	1.64
10 min	0.69	4.47	0.56	1.73
20 min	0.81	11.20	0.61	5.53
40 min	0.89	12.69	0.58	6.55
60 min	0.76	4.21	0.65	2.08

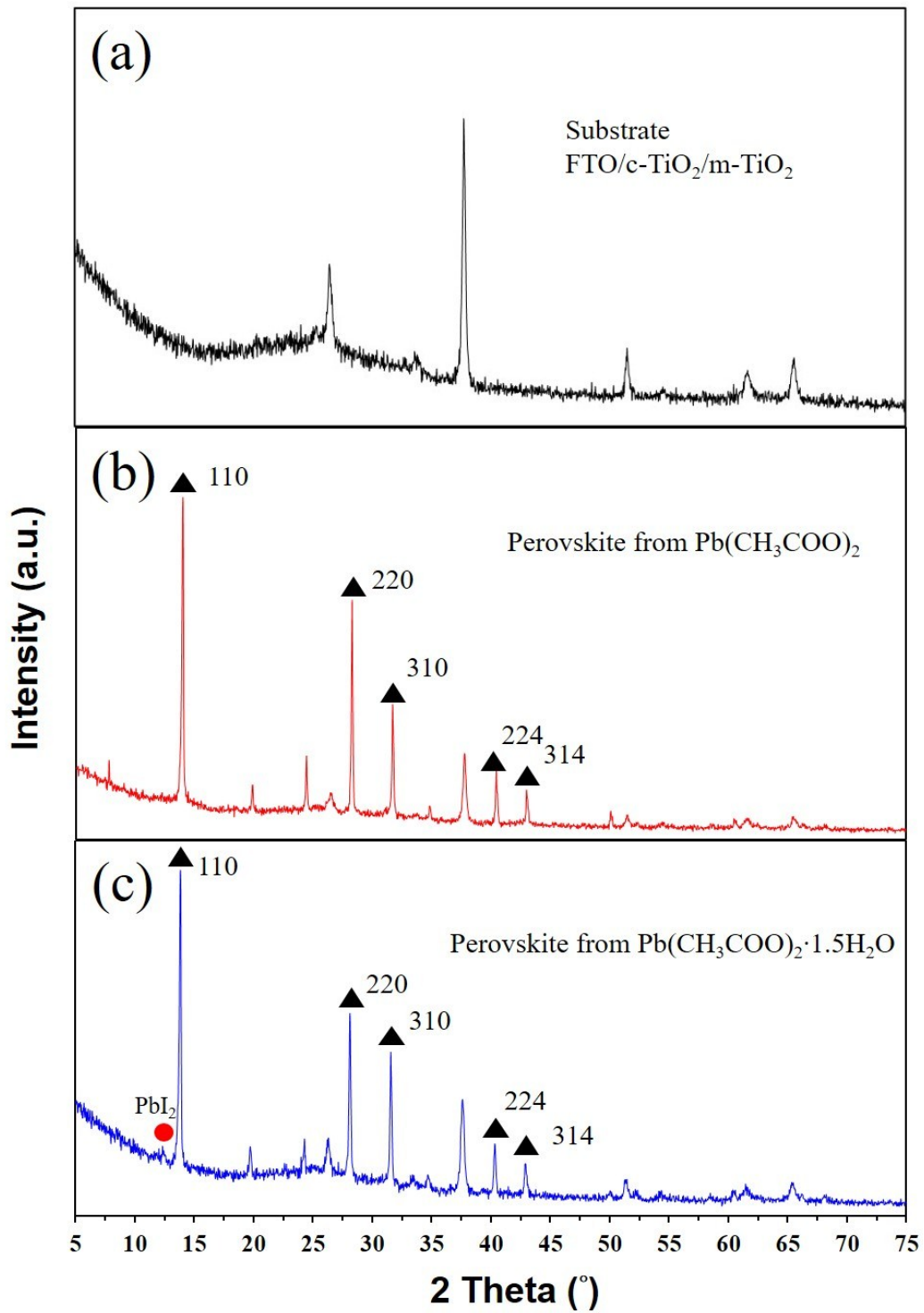


Fig. S1 X-ray diffraction spectra of (a) FTO/c-TiO₂/m-TiO₂ substrate, and the perovskite film by (b) Pb(CH₃COO)₂, (c) Pb(CH₃COO)₂·1.5H₂O as lead source.

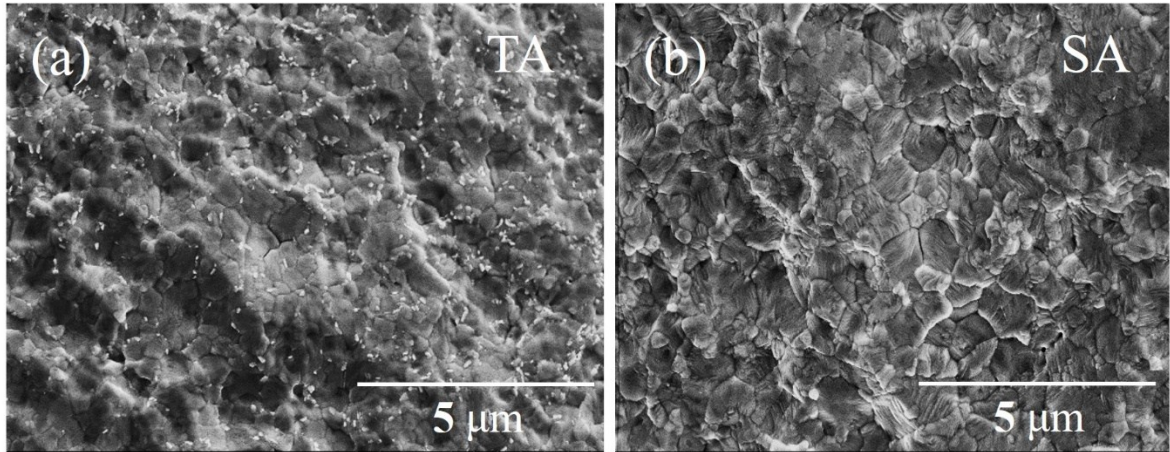


Fig. S2 The surface morphology of perovskite film by (a) thermal annealing, (b) solvent annealing.