

Electronic Supplementary Information (ESI) for

**Additive engineering to improve efficiency and stability of inverted planar
perovskite solar cells**

Chenglin Gao^{a,b,†}, Hongzhou Dong^{a,†}, Xichang Bao^{*,b}, Yongchao Zhang^b, Aziz Saporbaev^b, Liyan Yu^a,
Shuguang Wen^b, Renqiang Yang^{*,b}, and Lifeng Dong^{*,a,c}

^a *College of Materials Science and Engineering, Qingdao University of Science and Technology,
Qingdao 266042, China*

^b *CAS Key Laboratory of Bio-based Materials, Qingdao Institute of Bioenergy and Bioprocess
Technology, Chinese Academy of Sciences, Qingdao 266101, China*

^c *Department of Physics, Hamline University, St Paul 55104, USA*

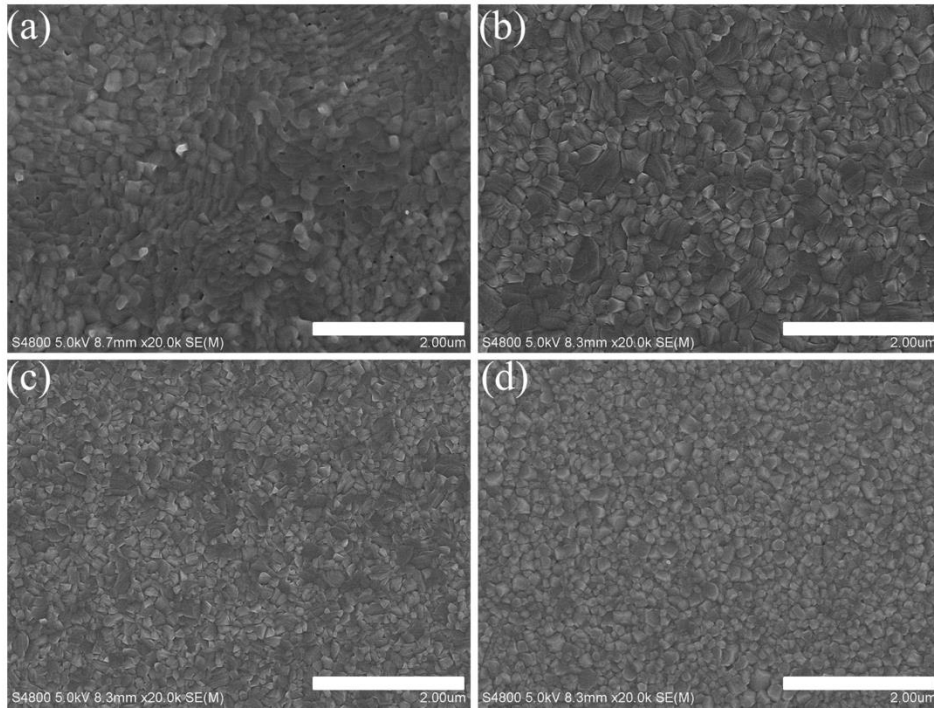


Fig. S1. Top view SEM images (a-d) of the perovskite films with different FAAC ratios (0, 5, 10 and 15 mol%).

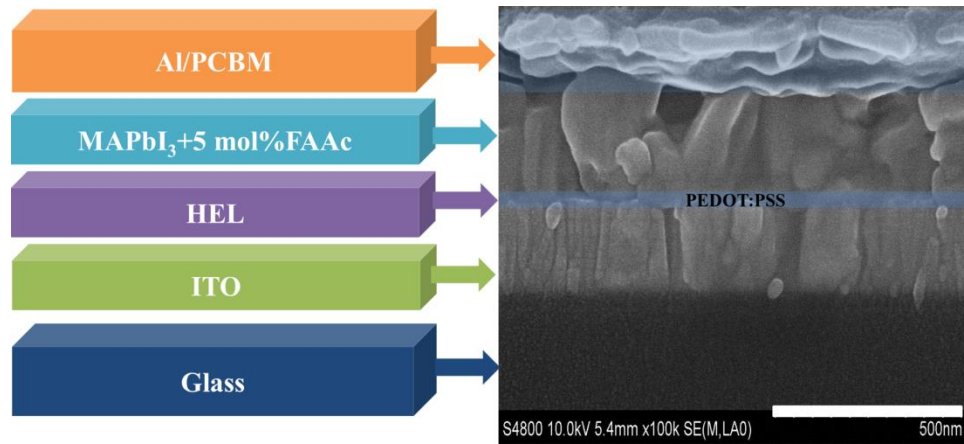


Fig. S2. Device structure and SEM cross-sectional image of the PSC with 5 mol% FAAC.