**Supporting Information**

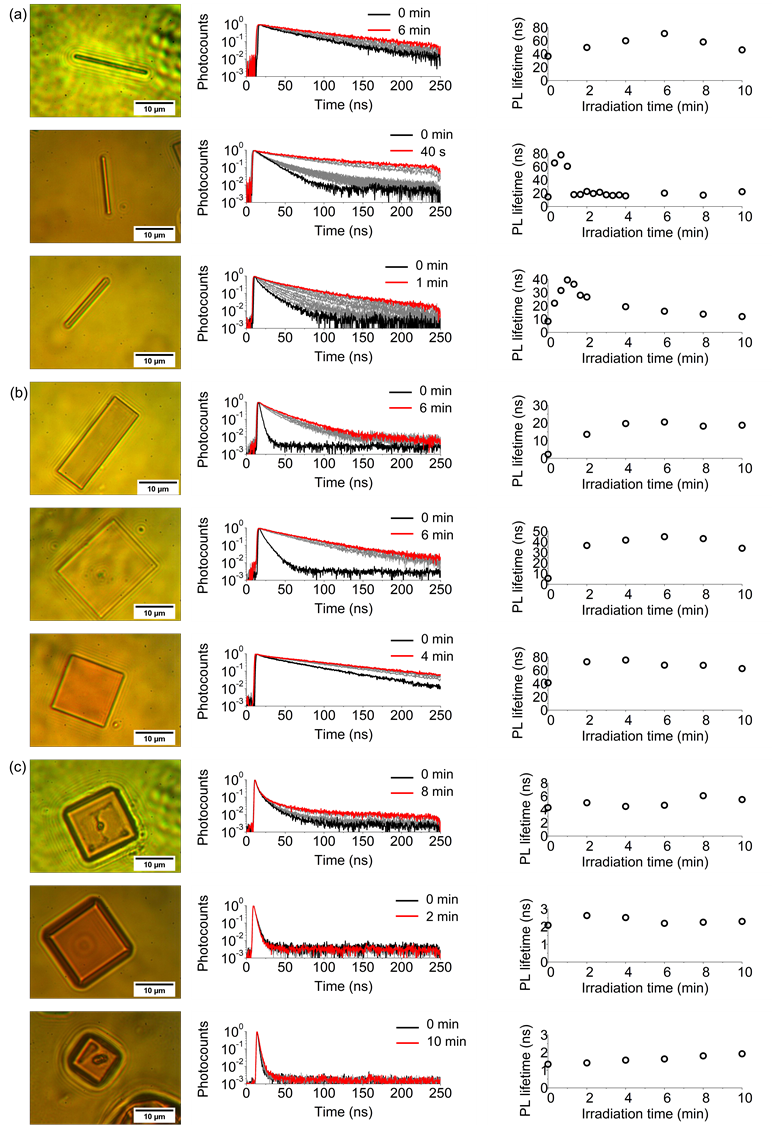


Figure S1. Optical microscope images, the PL decays, and the temporal evolutions of PL lifetime values of (a) a microrod, (b) a microplate, and (c) a microcube.

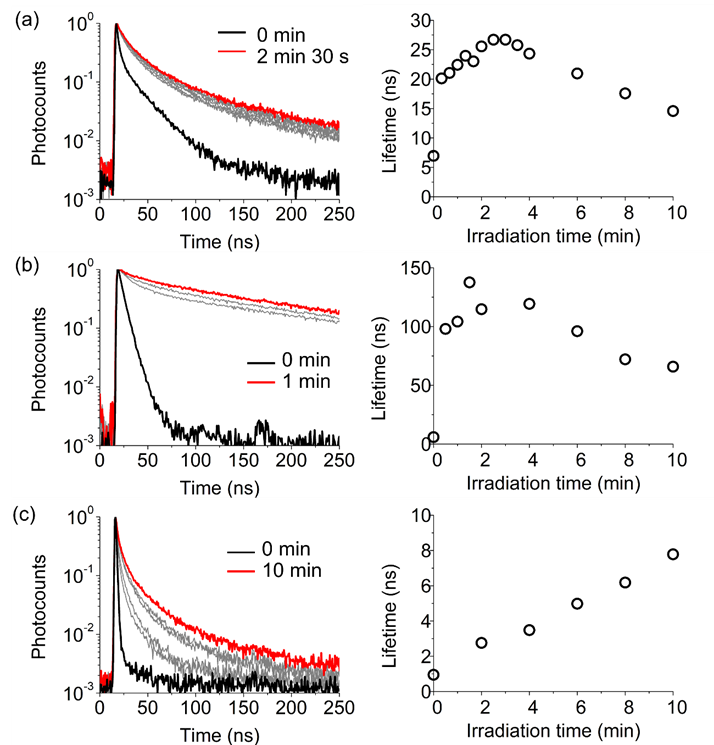


Figure S2. The PL decays and the temporal evolutions of the PL lifetime values of (a) a microrod, (b) a microplate, and (c) a microcube.

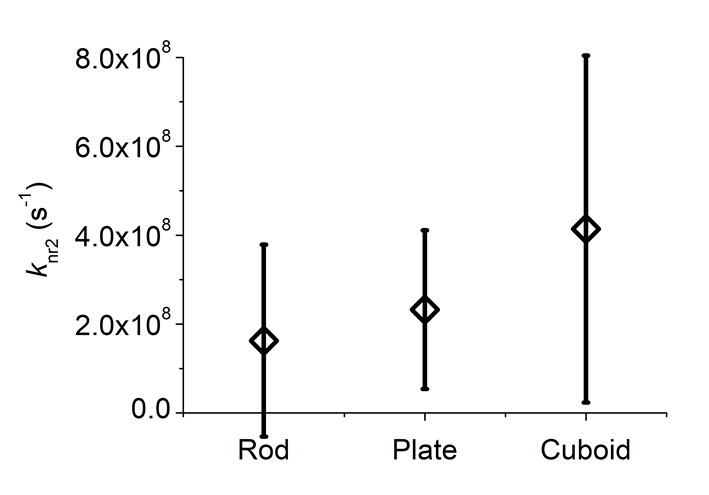


Figure S3. The average (s−1) for each shaped MAPbBr3 microcrystals. The vertical bars give the standard deviation obtained for five different microcrystals shown in Figures 2, 3, and S1.

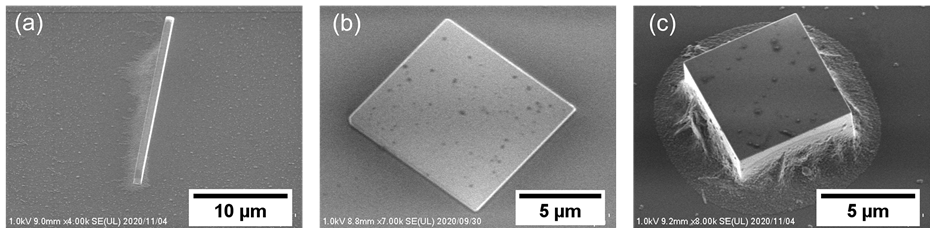


Figure S4. SEM images tilted with 30° of (a) a microrod, (b) a microplate, and (c) a microcube after ps laser irradiation in a MABr solution.

Reference

1. a) R. García-Aboal, R. Fenollosa, F. Ramiro-Manzano, I. Rodríguez, F. Meseguer, P. Atienzar, *ACS Omega* **2018**, *3*, 5229–5236; b) M. J. Islam, M. Shahjahan, K.-I. Yuyama, V. Biju, *ACS Materials Letters* **2020**, *2*, 403–408.