

**Aspect-ratio controllable growth of rectangular cesium lead bromide crystallites
on PTAA modified substrate**

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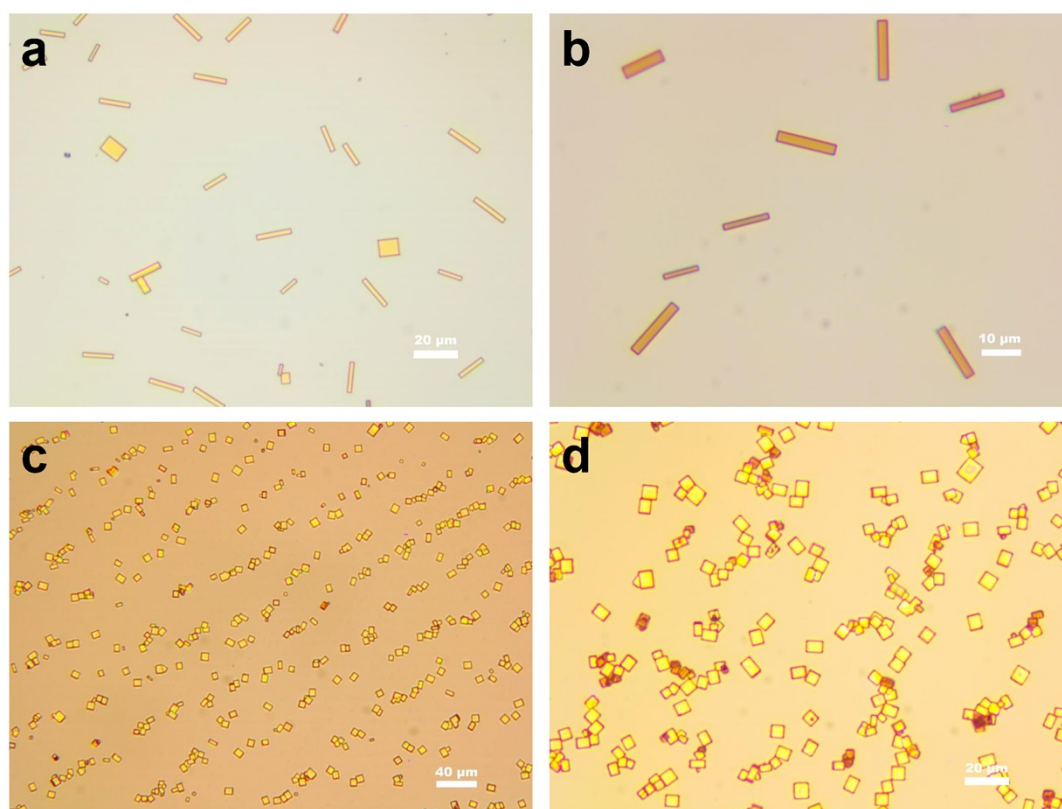


Figure S1. (a, b) Microscopic images of CsPbBr₃ crystallites with large aspect ratio at low and high magnification. (c, d) Microscopic images of CsPbBr₃ crystallites with small aspect ratio at low and high magnification.

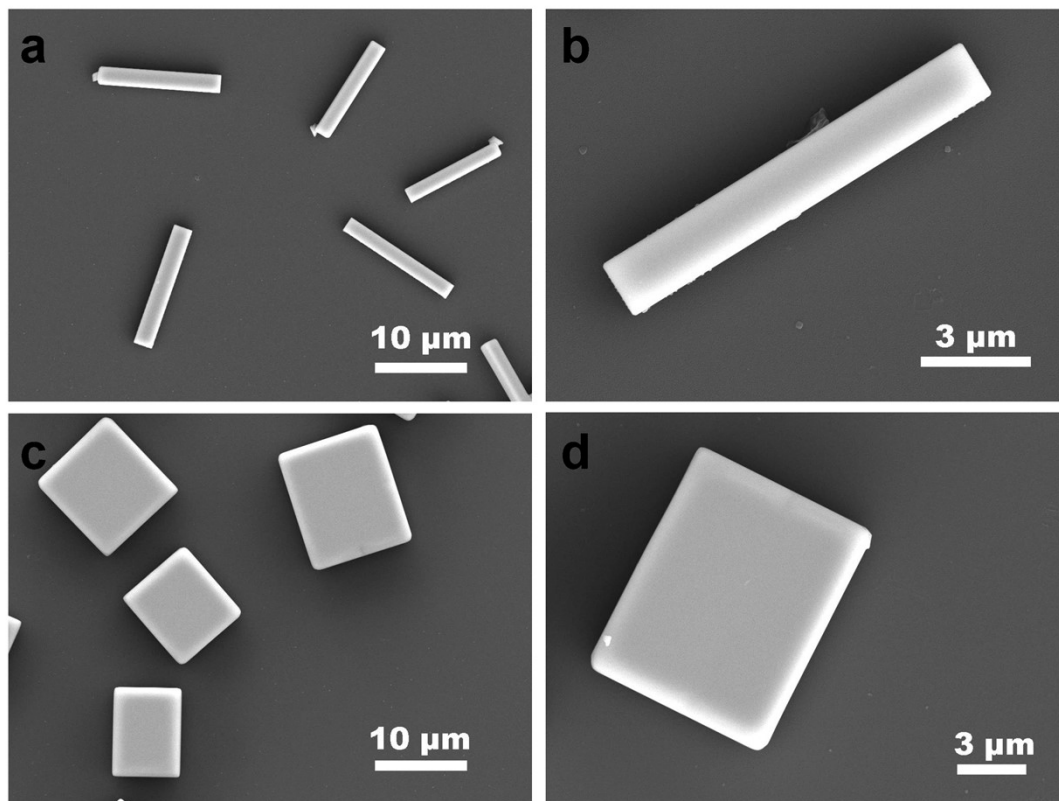


Figure S2. (a, b) The large aspect ratio CsPbBr_3 crystallites have lengths of 5-20 μm .

(c, d) The small aspect ratio CsPbBr_3 crystallites have edge sizes of 5-10 μm .

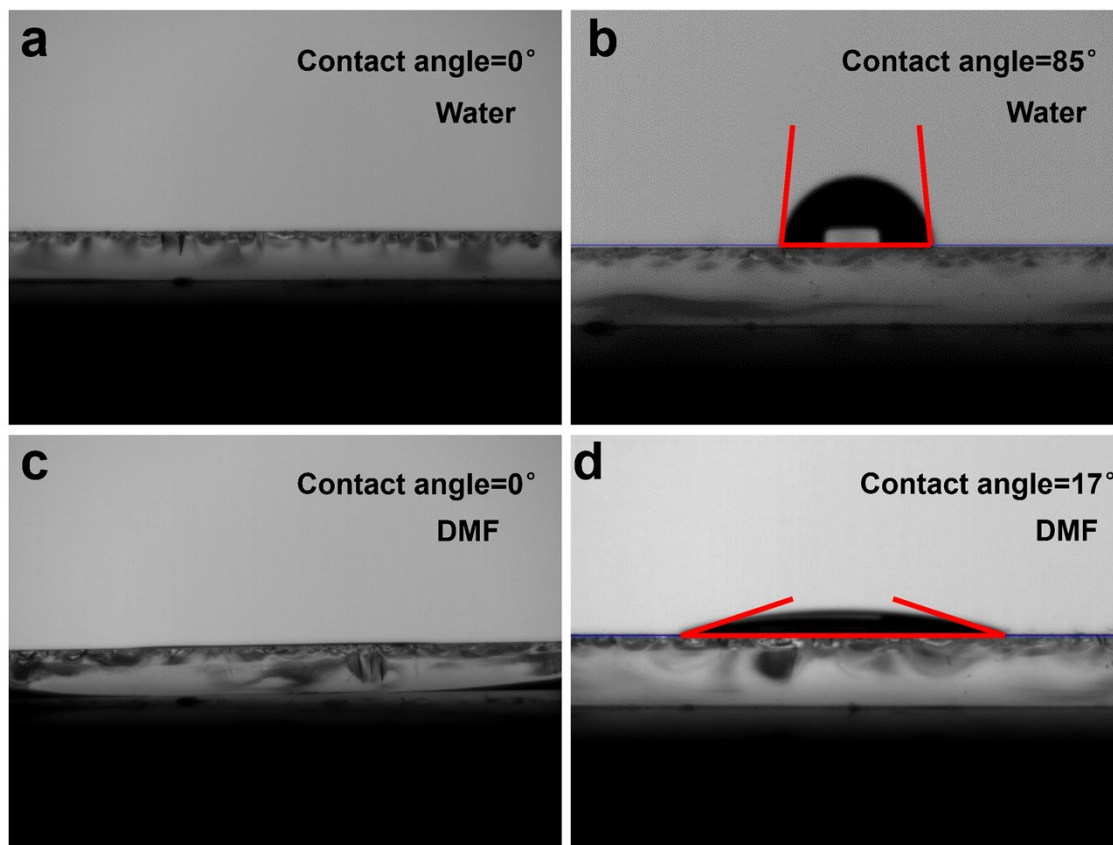


Figure S3. (a) Contact angle of deionized water on UV/O₃ treated glass surface. (b) Contact angle of deionized water on PTAA-coated glass surface. (c) Contact angle of DMF on UV/O₃ treated glass surface. (d) Contact angle of DMF on PTAA-coated glass surface.

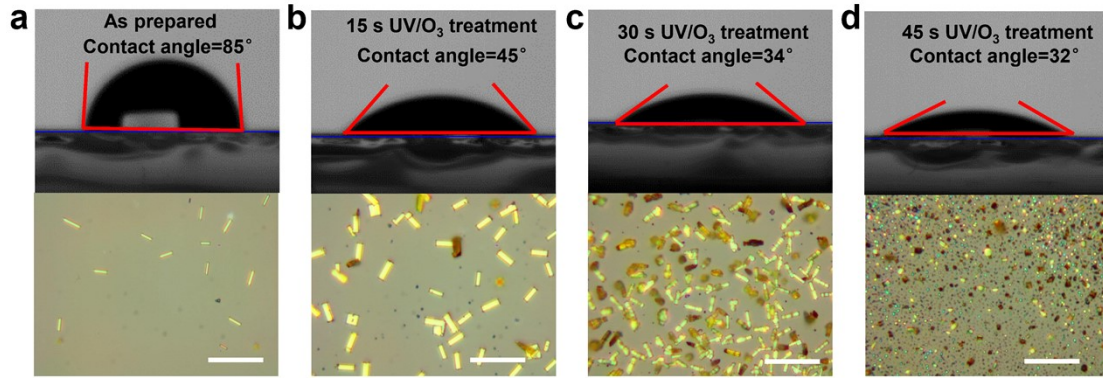


Figure S4. The contact angle of deionized water on PTAA-coated glass substrates treated by UV/O₃ for different times (above), and the pictures of prepared perovskite crystallites on UV/O₃ treated PTAA-coated glass substrates (below). The scale bar is 30 μm.

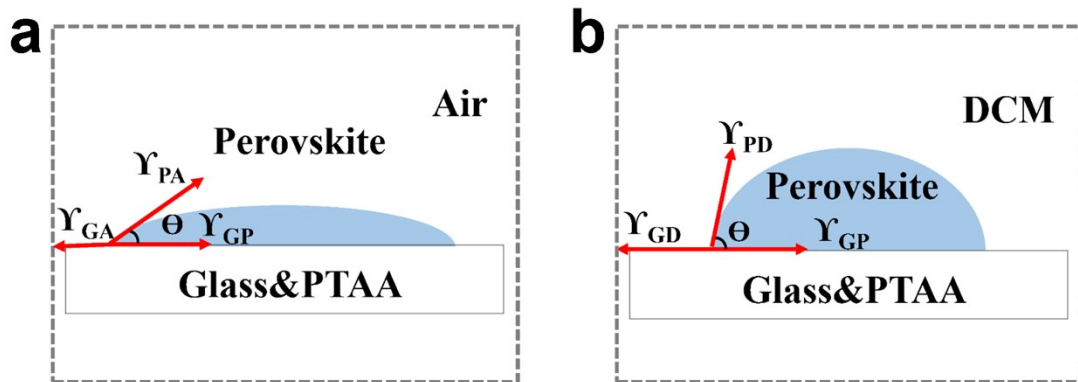


Figure S5. (a) Schematic diagram of the perovskite precursor dripping onto a PTAA modified glass substrate in air. (b) Schematic diagram of the perovskite precursor dripping onto a PTAA modified glass substrate in DCM.

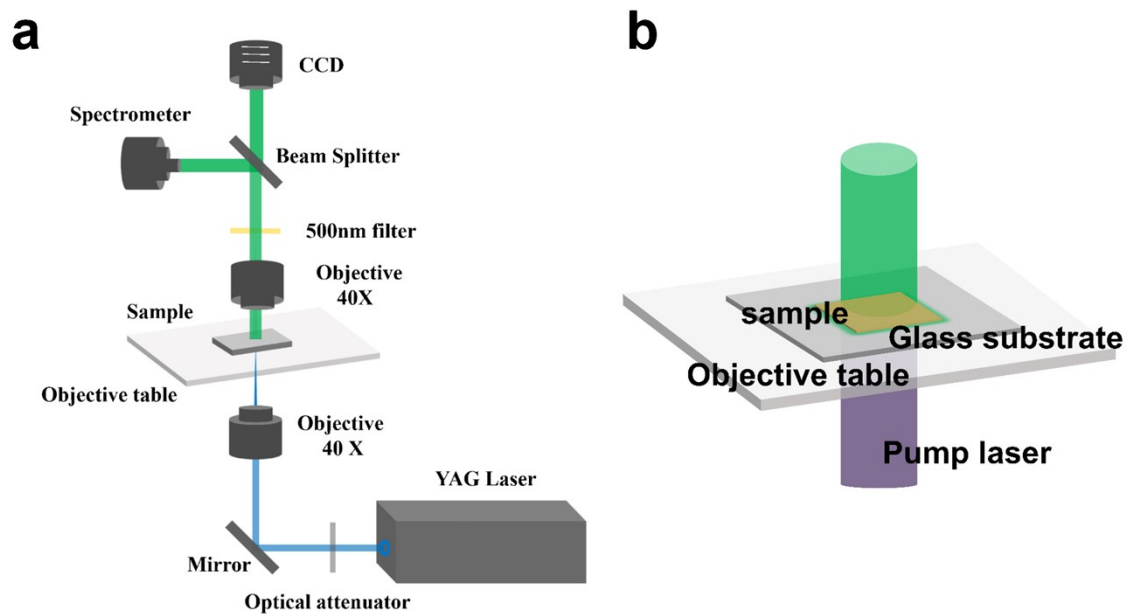


Figure S6. (a, b) Schematic diagram of laser performance test of CsPbBr₃ crystallites.

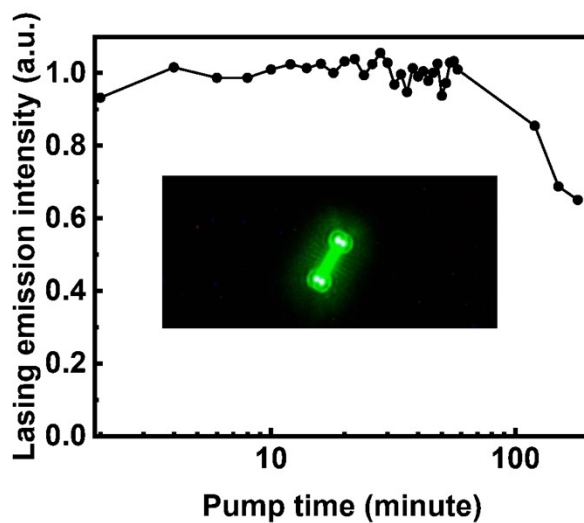


Figure S7. The relationship between the laser emission intensity and the pumping time of the CsPbBr₃ crystallite under the continuous irradiation of a 450 nm pulsed laser (5 ns, 10 Hz, 1.2P_{Th}) for 3 h at room temperature.