

Supporting Information

Microencapsulation of Lead-halide Perovskites in an Oil-in-fluorine Emulsion for Cell Imaging

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Keywords: lead-halide perovskites; microencapsulation; oil-in-fluorine emulsion; cell imaging.

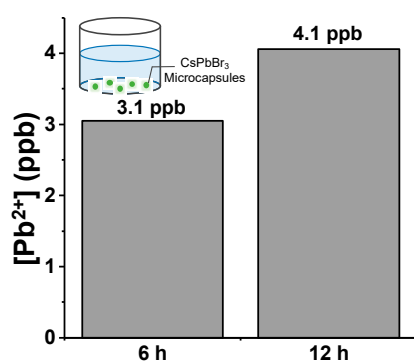


Figure S1. The leaked lead concentration after immersing the CsPbBr₃ microcapsules in deionized water for 6 h and 12 h. The inserted schematic illustration for lead leakage test.

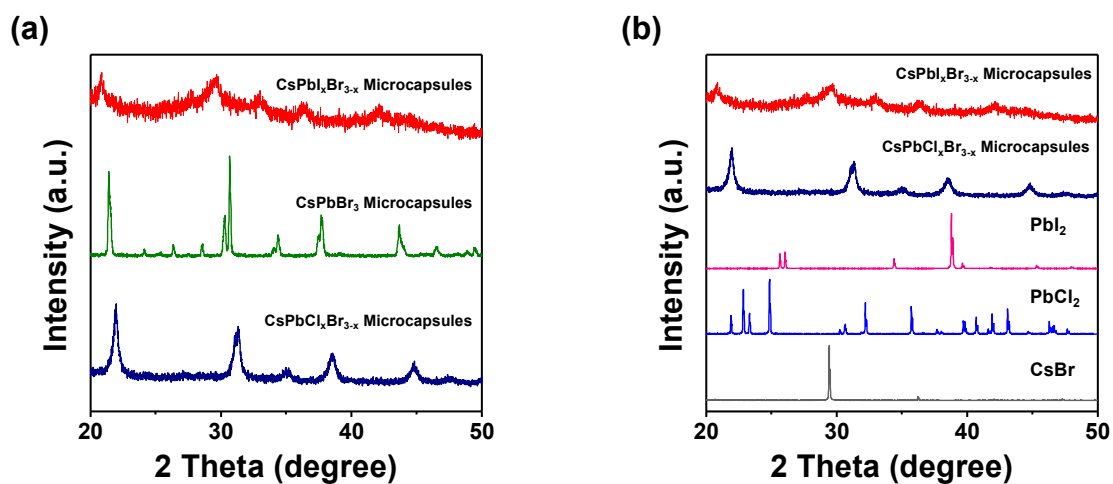


Figure S2. (a) XRD pattern for the CsPbI₃Br_{3-x} microcapsules, CsPbBr₃ microcapsules and CsPbCl₃Br_{3-x} microcapsules. As the halide ion was changed from Cl⁻ to Br⁻ and to I⁻, the 2 theta angle shifts to a small angle direction. (b) XRD pattern for the CsPbI₃Br_{3-x} microcapsules, CsPbCl₃Br_{3-x} microcapsules, PbI₂, PbCl₂ and CsBr.

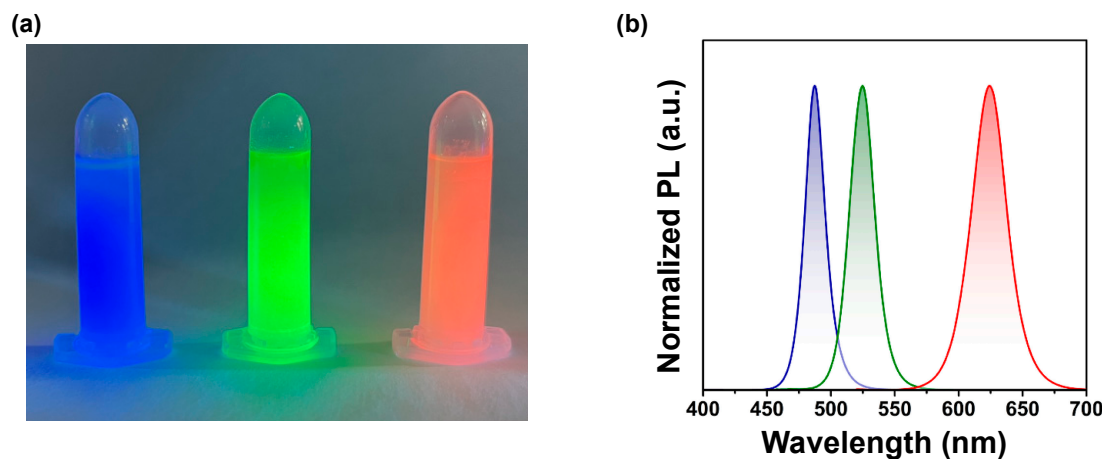


Figure S3. (a) Photograph and (b) PL emission spectra of LHP microcapsules with different emission

colors dispersed in PFO.

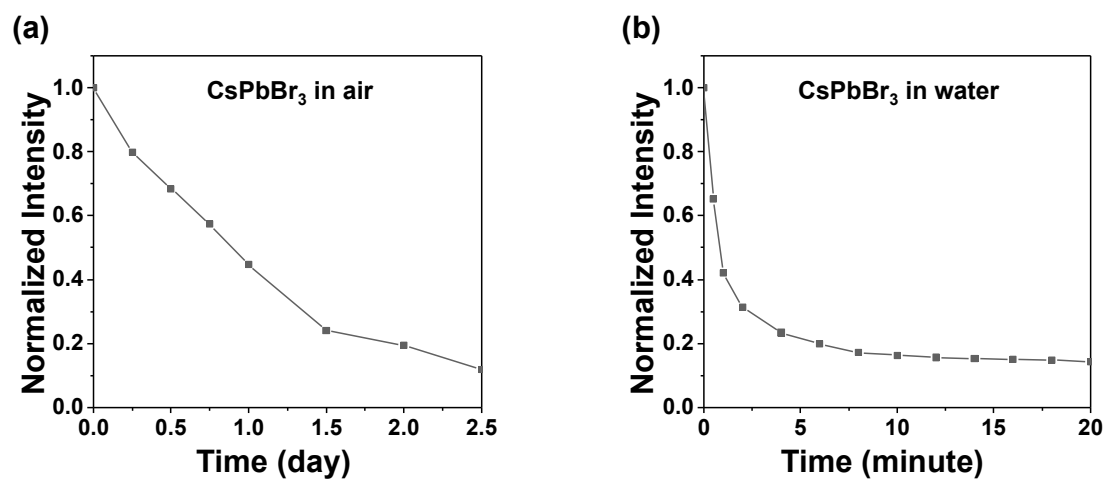


Figure S4. The relative fluorescence intensity of CsPbBr₃ as a function of time (a) in air and (b) in water.

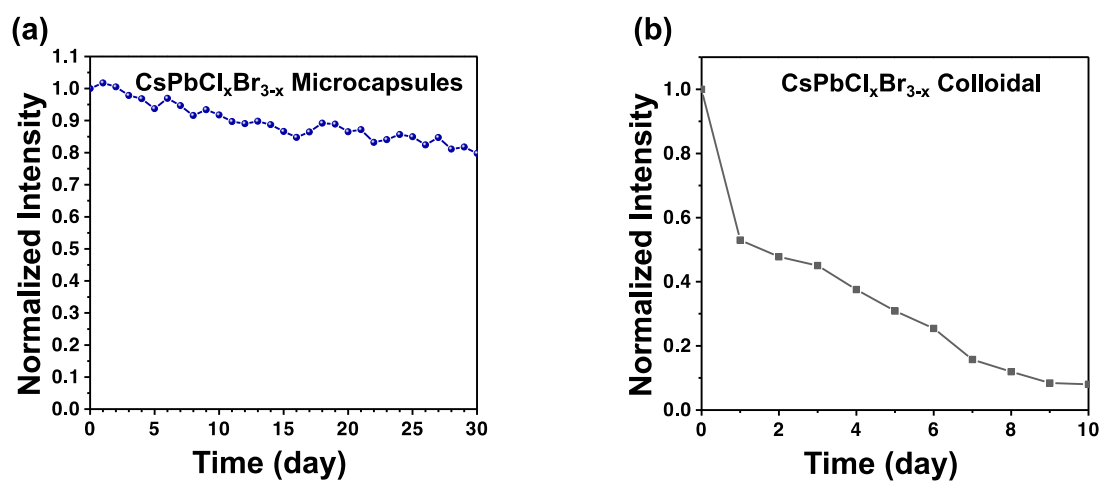


Figure S5 The relative fluorescence intensity of (a) CsPbCl_xBr_{3-x} microcapsules and (b) colloidal CsPbCl_xBr_{3-x} as a function of air exposure.

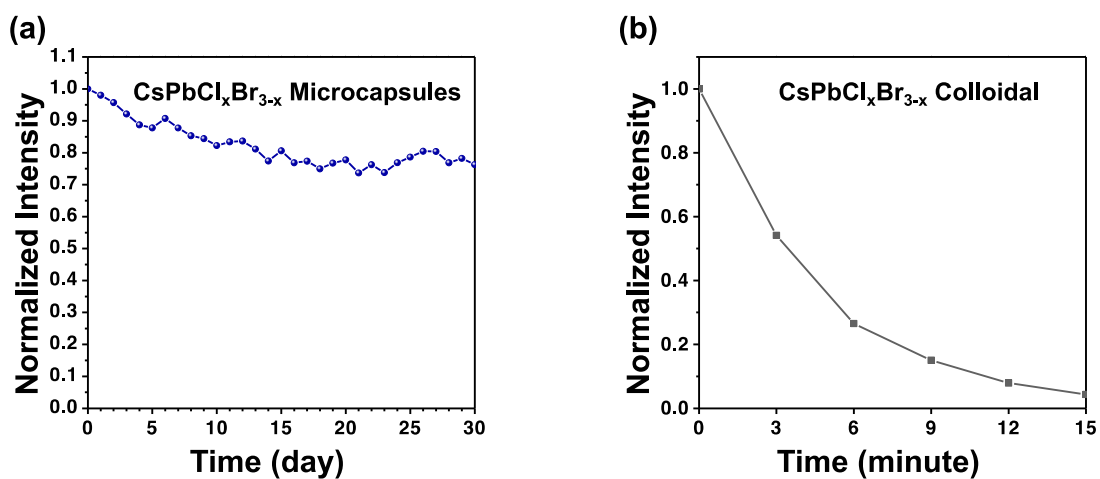


Figure S6. The relative fluorescence intensity of (a) $\text{CsPbCl}_x\text{Br}_{3-x}$ microcapsules and (b) colloidal $\text{CsPbCl}_x\text{Br}_{3-x}$ as a function of water exposure.

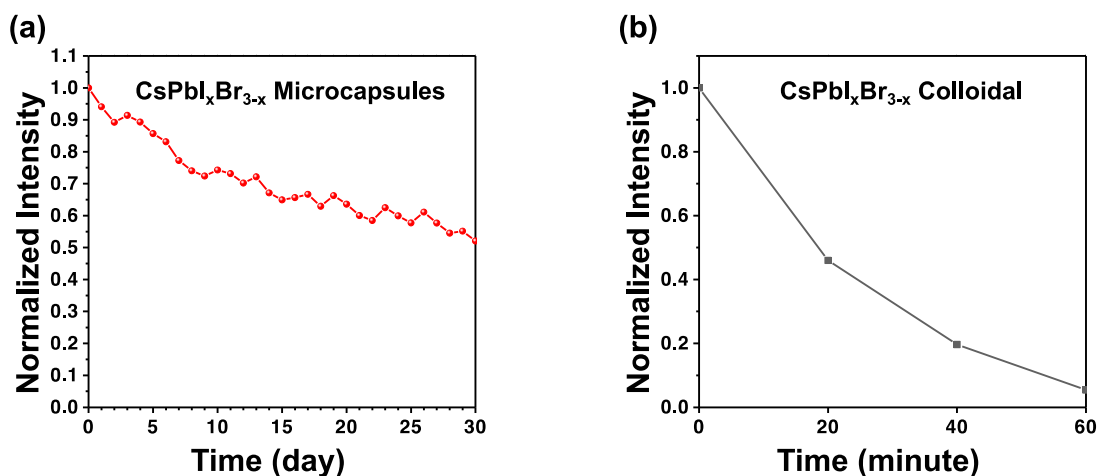


Figure S7. The relative fluorescence intensity of (a) $\text{CsPbI}_x\text{Br}_{3-x}$ microcapsules and (b) colloidal $\text{CsPbI}_x\text{Br}_{3-x}$ as a function of air exposure.

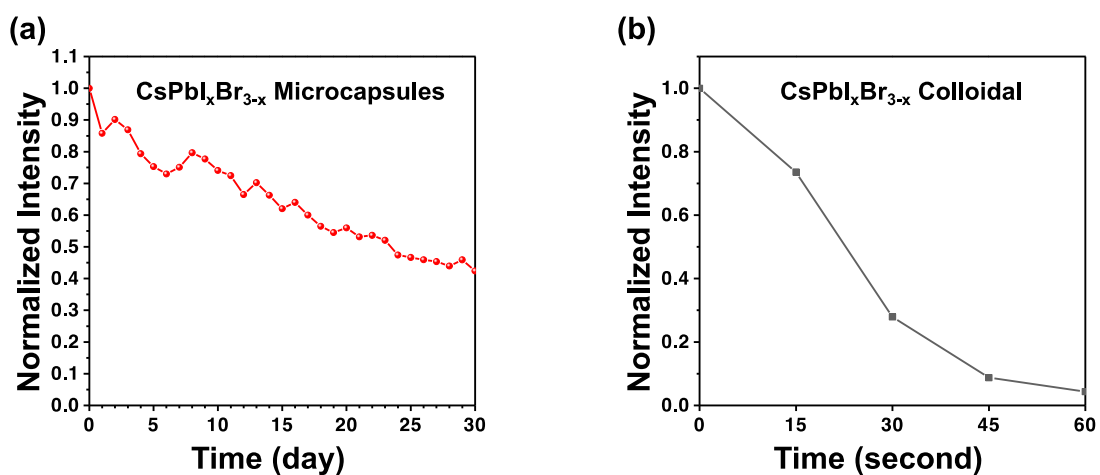


Figure S8. The relative fluorescence intensity of (a) $\text{CsPbI}_x\text{Br}_{3-x}$ microcapsules and (b) colloidal $\text{CsPbI}_x\text{Br}_{3-x}$ as a function of time in the water.

Table S1. Tabulated Fitted Lifetime Components for the CsPbBr_3 microcapsules and pure CsPbBr_3 perovskites.

Materials	τ_1	τ_2	χ^2	τ_{avg}
CsPbBr_3 microcapsules	3.83 ns (61.2%)	19.71 ns (38.7%)	0.994	15.98 ns
pure CsPbBr_3 perovskites	2.48 ns (75.8%)	13.66 ns (24.2%)	0.995	9.61 ns