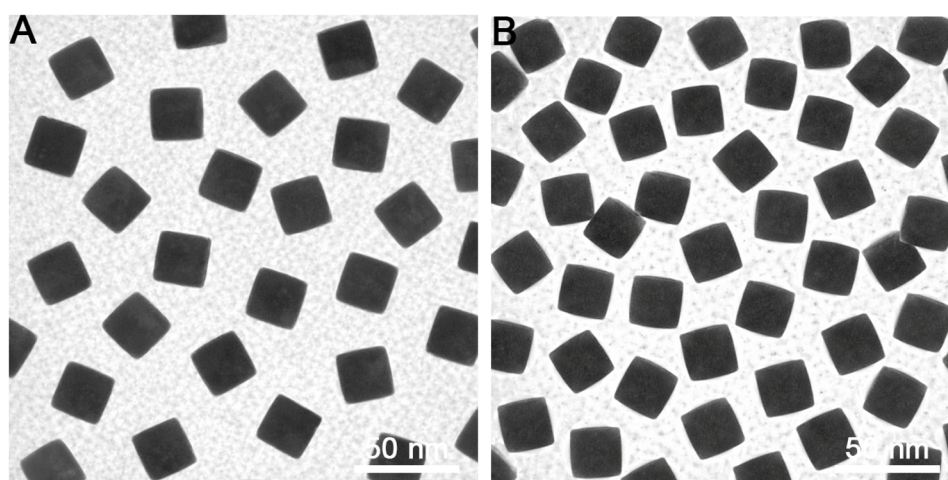
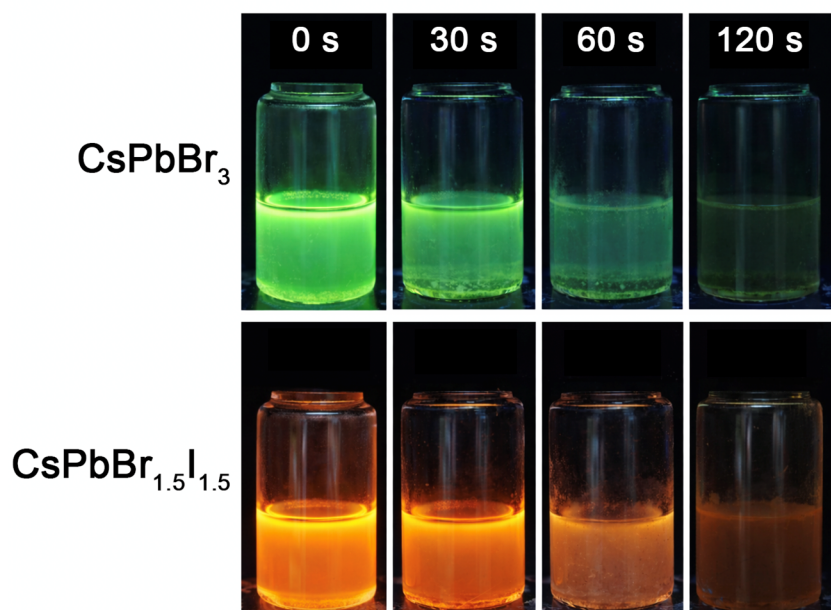


Supplementary Materials

Homogeneous Multicolor Perovskite Quantum Dots Enable Ratiometric Profiling of Pan-Deubiquitinating Activity in Perioperative Neurocognitive Disorders Blood Samples

Rongjin Shi ^{1,2}, Siyi Han ¹ and Enduo Feng ^{1,*}¹ School of Chemical Science and Engineering, Tongji University, Shanghai 200092, China² Shanghai Key Laboratory of Anesthesiology and Brain Functional Modulation, Clinical Research Center for Anesthesiology and Perioperative Medicine, Translational Research Institute of Brain and Brain-Like Intelligence, Shanghai Fourth People's Hospital, School of Medicine, Tongji University, Shanghai 200434, China

* Correspondence: edfeng@tongji.edu.cn

Figure S1. TEM images of (A) CsPbBr₃ and (B) CsPbBr_{1.5}I_{1.5}.Figure S2. Photographs under UV illumination of CsPbBr₃ and CsPbBr_{1.5}I_{1.5} storage in DI water for different times.

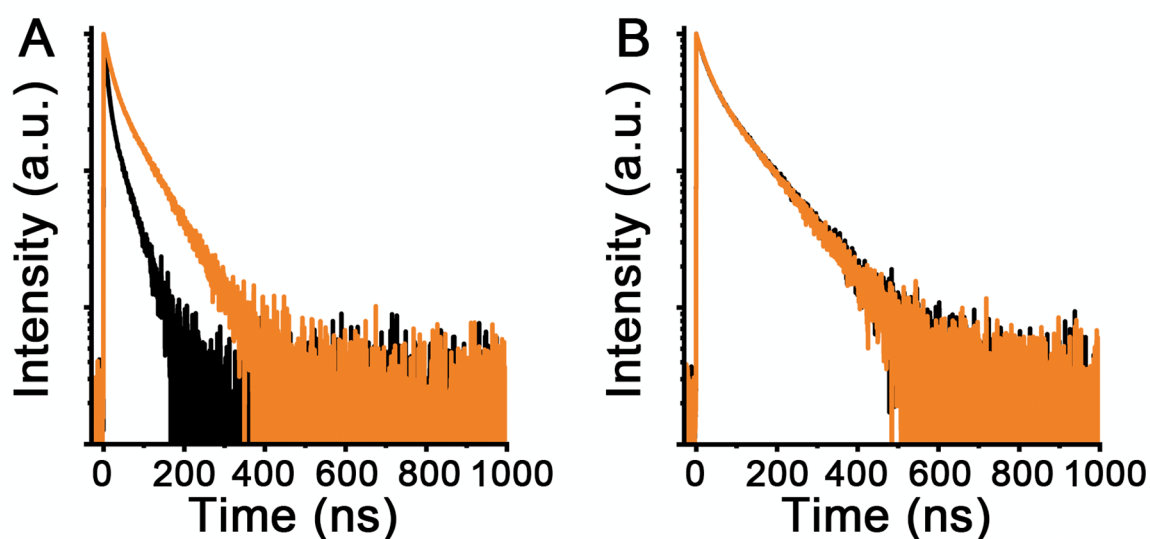


Figure S3. (A) The fluorescent lifetime of CsPbBr₃@SiO₂ before (black) and after (orange) the cleavage of peptides. (B) The fluorescent lifetime of CsPbBr_{1.5}I_{1.5}@SiO₂ before (black) and after (orange) the cleavage of peptides.

Table S1. The comparison of our method with previously reported DUB activity assays.

Detection Method	Target	Linear Range (IU/mL)	LOD (IU/mL)	Anti-Interference Performance	Applicable Matrix	Ref.
This work (Ratiometric PQDs)	Pan-DUB total activity	0.01–0.5	0.004	$\Delta R < 5\%$ for 8 interferences	Serum	/
Ub-AMC	Specific DUBs (e.g., UCH-L3, IPaseT)	N/A	N/A	signal distortion in serum	Buffer	[43]
DiUb FRET probe	Specific DUBs (e.g., UCH-L3)	N/A	N/A	asynchronous response of organic dyes	Buffer	[44]
Ub-CL	Single DUB (UCH-L3)	N/A	N/A	no background excitation	Buffer	[45]
MspA nanopore	Specific DUBs (e.g., UCH37)	N/A	N/A	no optical interference	Buffer	[46]
IMP-2373	Multiple DUBs	N/A	N/A	Covalent labeling of 35+ DUBs in live cells	Live cells	[47]