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Supplementary Information

Visualization of Level-3 Latent Fingerprint by Surfactant-Free $CsPbBr_3$ MC with $Pb(OH)_2$ as Passivation Layer and Anchored Bridge

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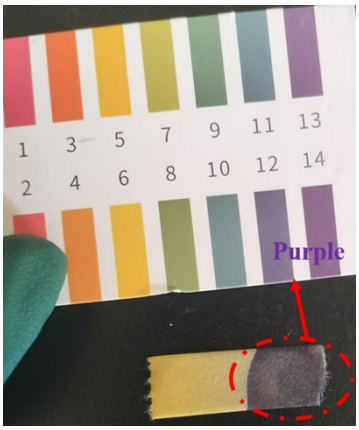

Figure S1 The pH test paper for mixed solution of Cs_2CO_3, HBr and $PbBr_2$ with methylamine vapor.

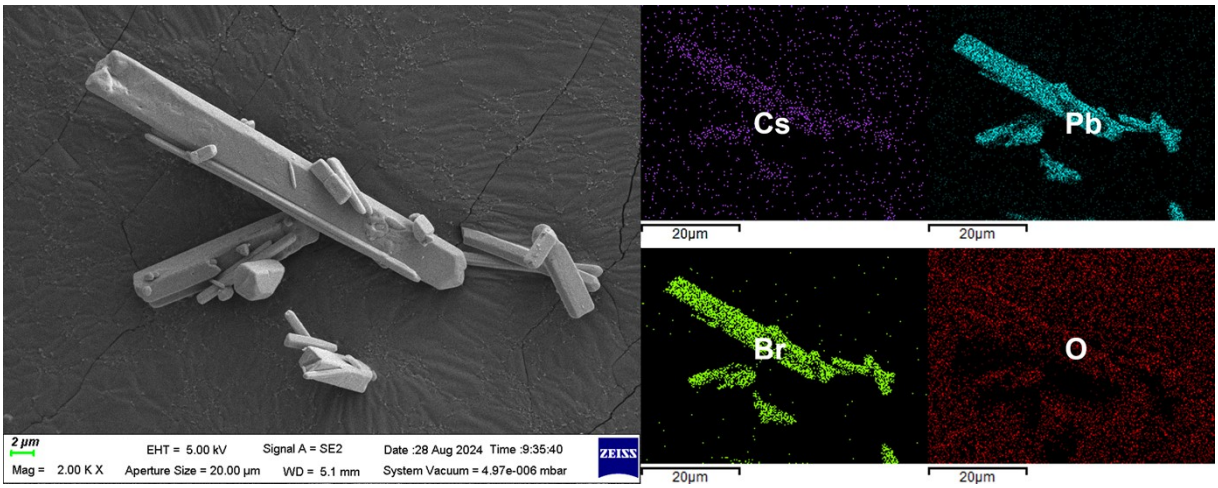

Figure S2 SEM and EDS of $CsPbBr_3$.

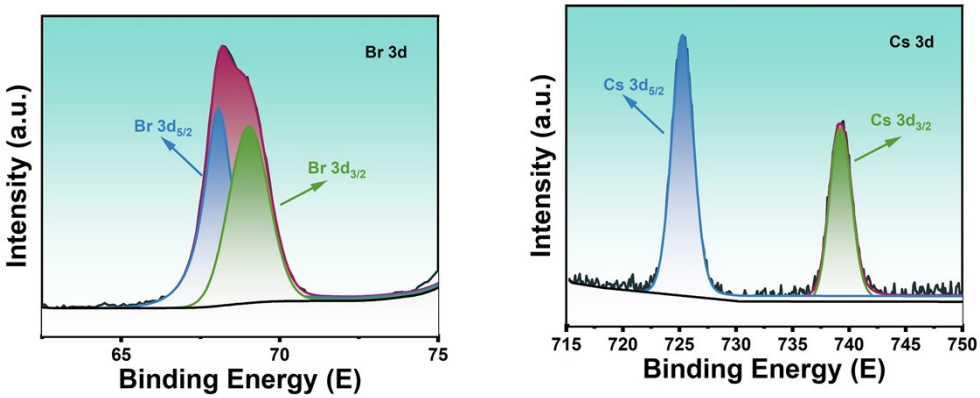

Figure S3 High-resolution Br 3d and Cs 3d spectra of $CsPbBr_3$-0.6 MC.

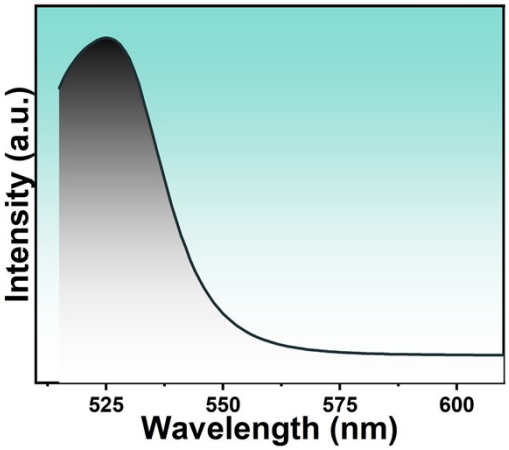

Figure S4 Emission spectra of $CsPbBr_3$ MC under 468 nm irradiation.

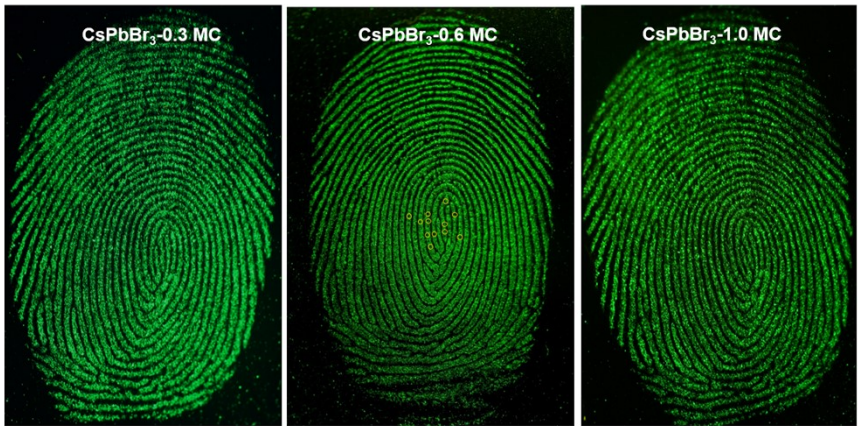

Figure S5 LFPs visualization images of different $CsPbBr_3$ MC.

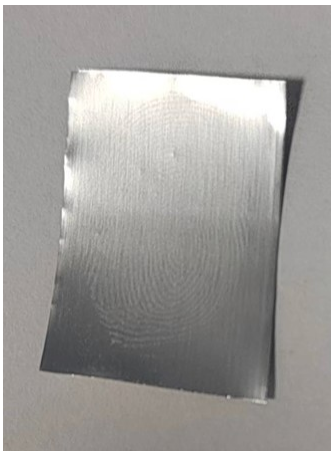

Figure S6. A photo of LFPs by direct observation.

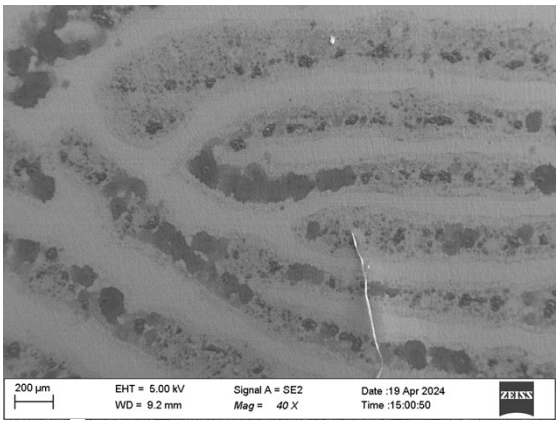

Figure S7. SEM of LFPs without $CsPbBr_3$ MC treatment.

Table S1 Visualization of LFPs with different developing materials

Developing Materials	LFPs features	Passivation layer	Visual interaction	Ref.
$CsPbBr_3$ nanocrystals	1-3	Oleic acid (OA) and oleyamine (OLA)	Hydrophobic interaction of OA and OLA	1
$CsPb(Cl_{1-y}Br_y)_3$ nanocrystals	1-2	OA and OLA	Hydrophobic interaction of OA and OLA	2
Ba_2LuSbO_6: Eu^{3+}	1-2	OA	Hydrophobic interaction of OA	3
$BaSrYZrO_{5.5}$: Eu^{3+}	1-2	-	-	4
Fe_3O_4@SiO_2-$CsPbBr_3$ NPs	1-3	APTES	Electrostatic attraction of APTES	5
$CsPbBr_3$/Cs_4PbBr_6 nanocrystals	1-3	OA and OLA	Hydrophobic interaction of OA and OLA	6
$CsPbBr_3$ QD@EuBTC	1-3	OA, OLA and EuBTC	Hydrophobic interaction of OA and OLA	7
$Ca_3Al_2Ge_3O_{12}$:Yb^{3+}, Er^{3+}	1-2	-	Physical absorption	8
Ba_2GdSbO_6:Sm^{3+}	1-3	OA	Hydrophobic interaction of OA	9
$La_2Zr_2O_7$:Er^{3+}	1-3	EDTA, OA, and PVP	electrostatic interactions	10
$La_2Zr_2O_7$: Ce^{3+} NPs	1-2	OA	Hydrophobic interaction of OA	11
SISO:0.20Eu^{3+}@OA	1-3	OA	Hydrophobic interaction of OA	12
$CsPbBr_3$ MC with $Pb(OH)_2$ passivation layer	1-3	$Pb(OH)_2$	Hydrogen bond	This work

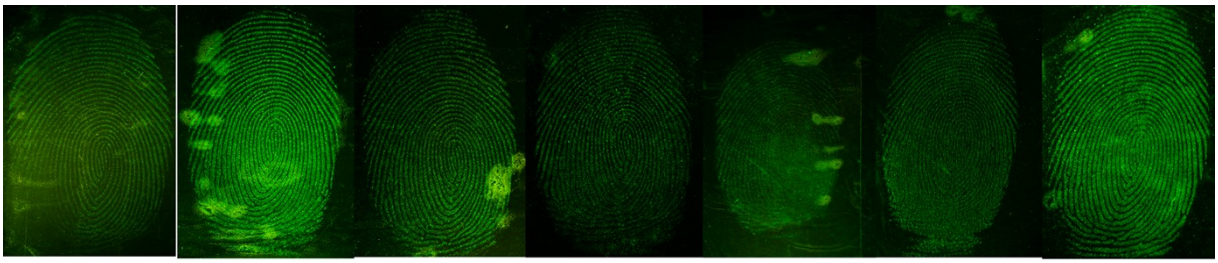

Figure S8 Photographs of rubbing LFPs from different substrates to glass.

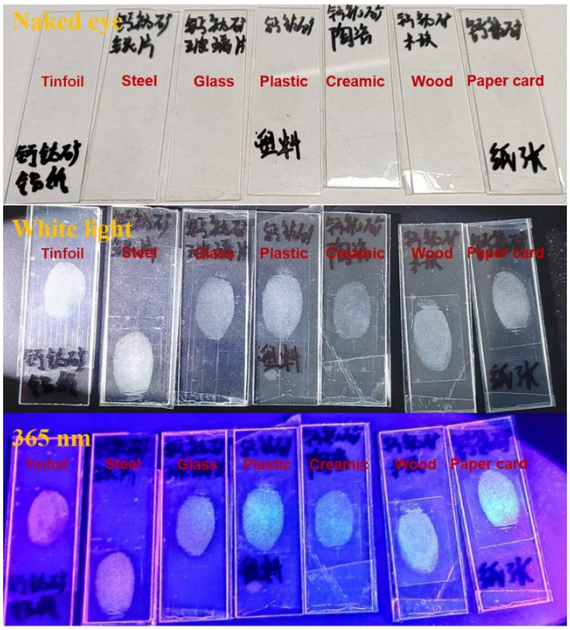

Figure S9 Photographs of rubbing LFPs from different substrates into glass under different condition.

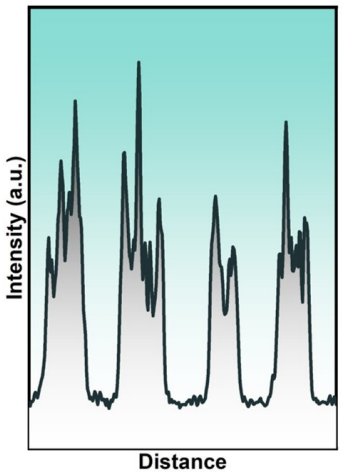

Figure S10 Variations of PL intensity between LFPs ridge and furrow across the yellow line in Figure 5a.

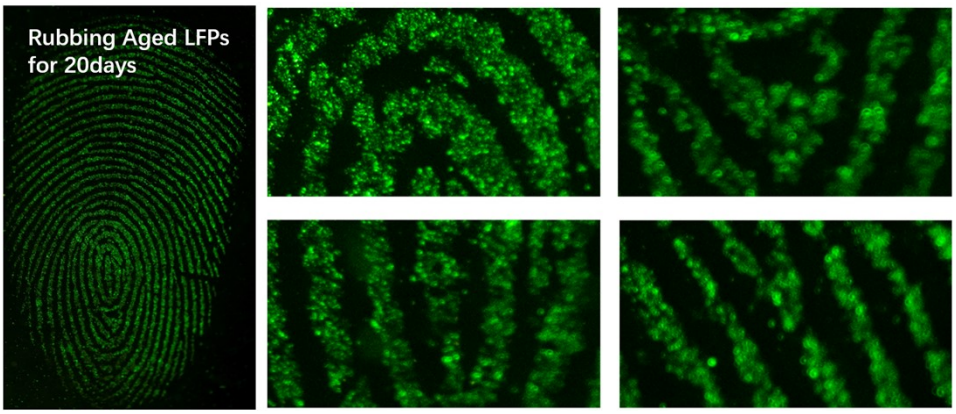

Figure S11 Photos of the rubbings from tinfoil with LFPs aged 20 days by the forensic fingerprint tape under 425 nm irradiation.

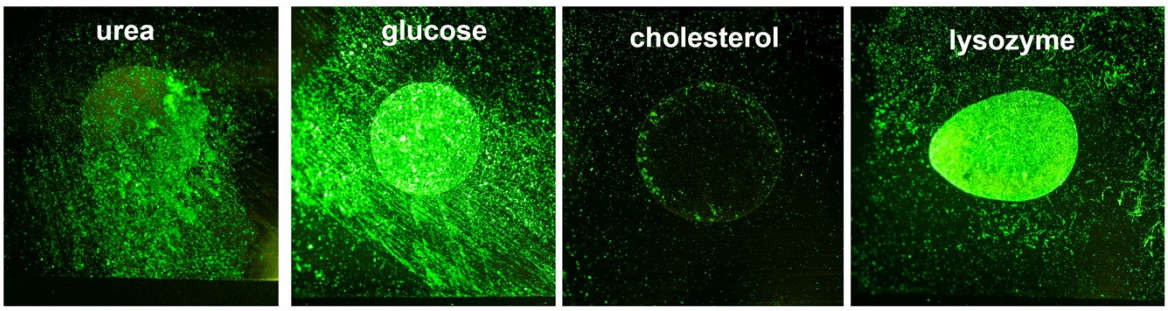

Figure S12 Fluorescent responses of $CsPbBr_3$ MC to main components in LFPs.

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