Supporting Information (SI)

Room-temperature Formation of Alloy $Zn_xCd_{13-x}Se_{13}$ Magic-size Clusters via Cation Exchange in Diamine Solution

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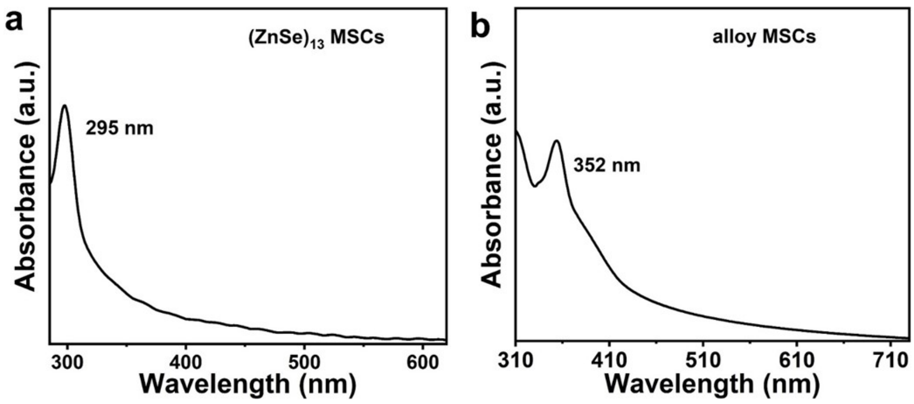

Fig. S1 Absorption spectra of MSCs after purification: (a) $(ZnSe)_{13}$ MSCs and (b) alloy MSCs.

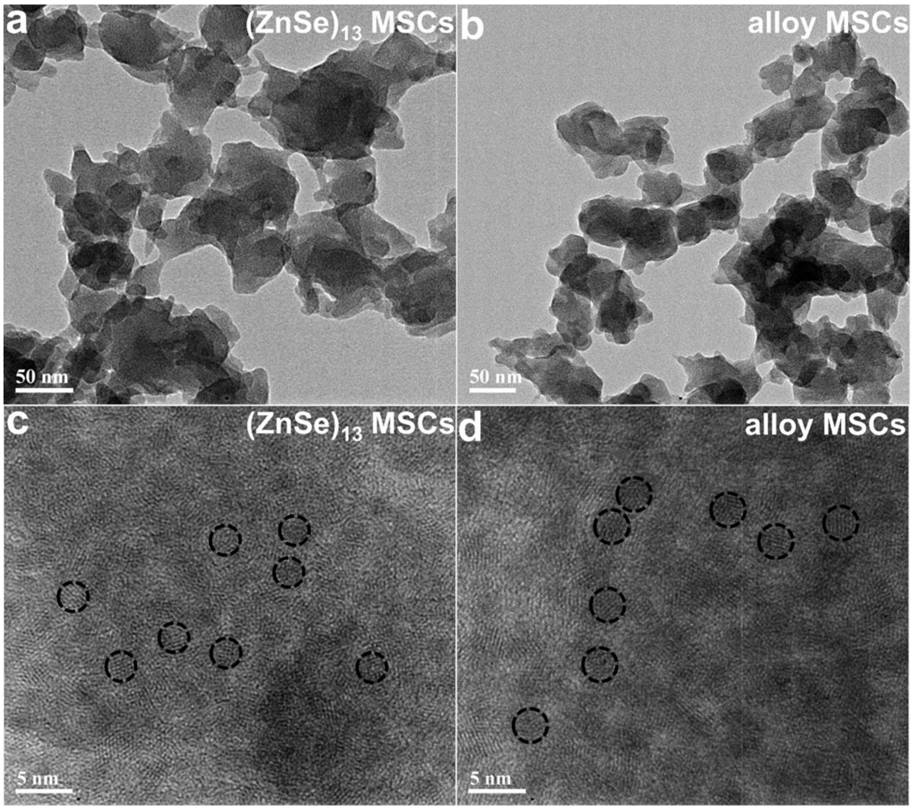

Fig. S2 TEM images of $(ZnSe)_{13}$ MSCs (a, c) and alloy MSCs (b, d).

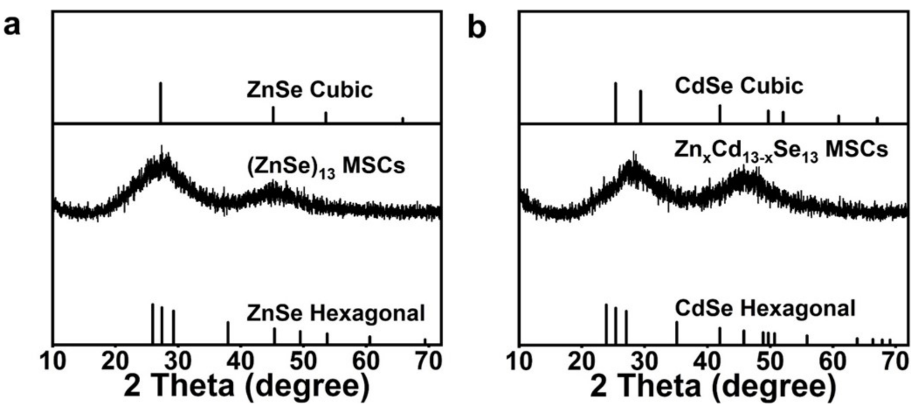

Fig. S3 XRD patterns of $(ZnSe)_{13}$ MSCs (a) and $Zn_xCd_{13-x}Se_{13}$ MSCs (b).

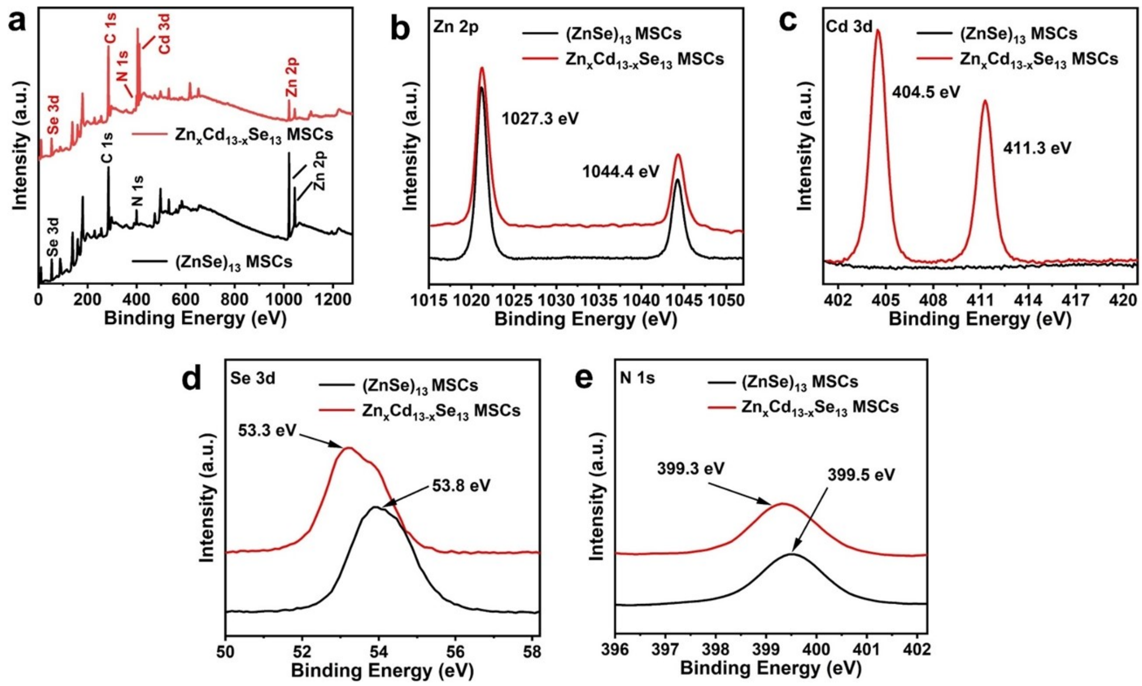

Fig. S4 XPS of $(ZnSe)_{13}$ MSCs (black curve) and $Zn_xCd_{13-x}Se_{13}$ MSCs (red curve): survey spectra (a) and high-resolution spectra of Zn 2p (b), Cd 3d (c), Se 3d (d), and N1s (e).

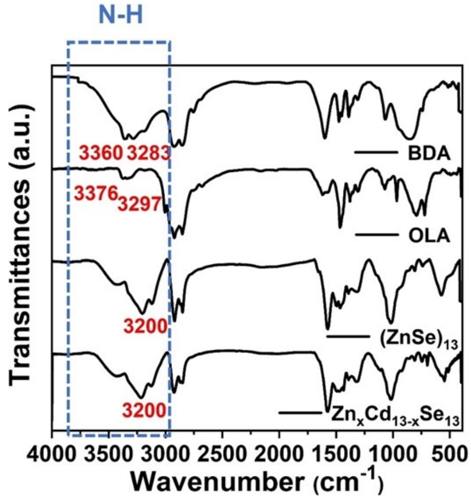

Fig. S5 FTIR spectra of amine ligands, $(ZnSe)_{13}$ and $Zn_xCd_{13-x}Se_{13}$ MSCs.

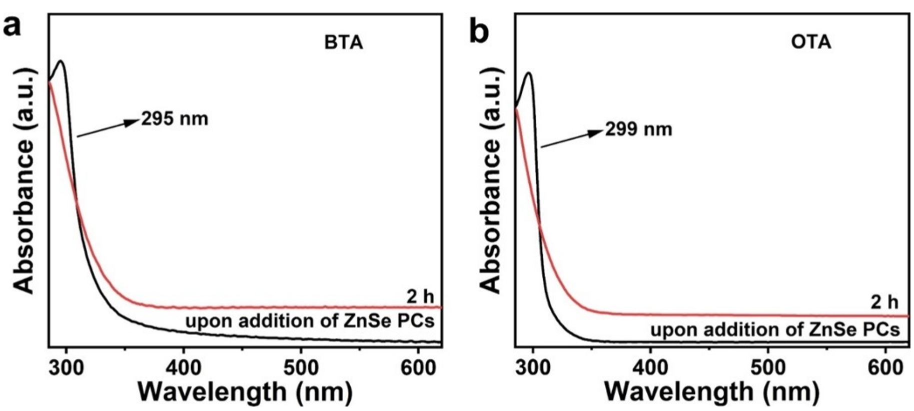

Fig. S6 Evolution of absorption spectrum of ZnSe PCs (20 μL) after dispersing in monoamine of 3mL BTA (a) or 3 mL OTA (b) at 25 °C

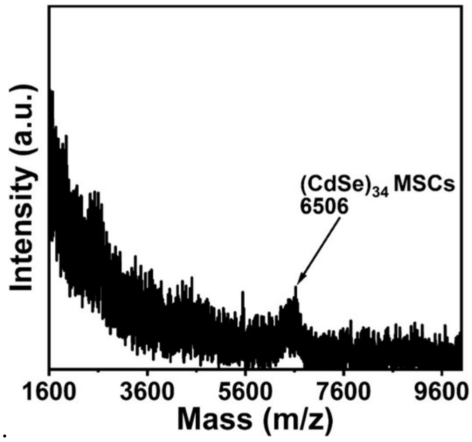

Fig. S7 MALDI-TOF MS of $(CdSe)_{34}$ MSCs.

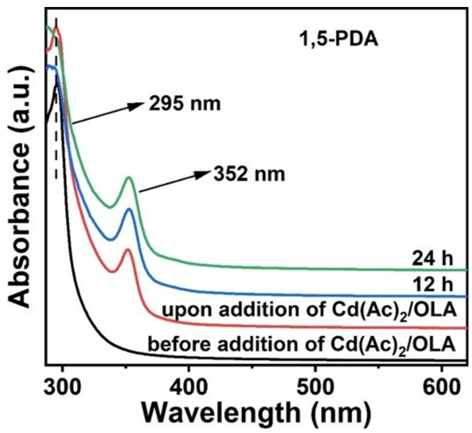

Fig. S8 Evolution of absorption spectrum of $(ZnSe)_{13}$ MSCs in 3.0 mL 1,5-PDA at 25 °C after adding $Cd(Ac)_2$/OLA (20 μL).

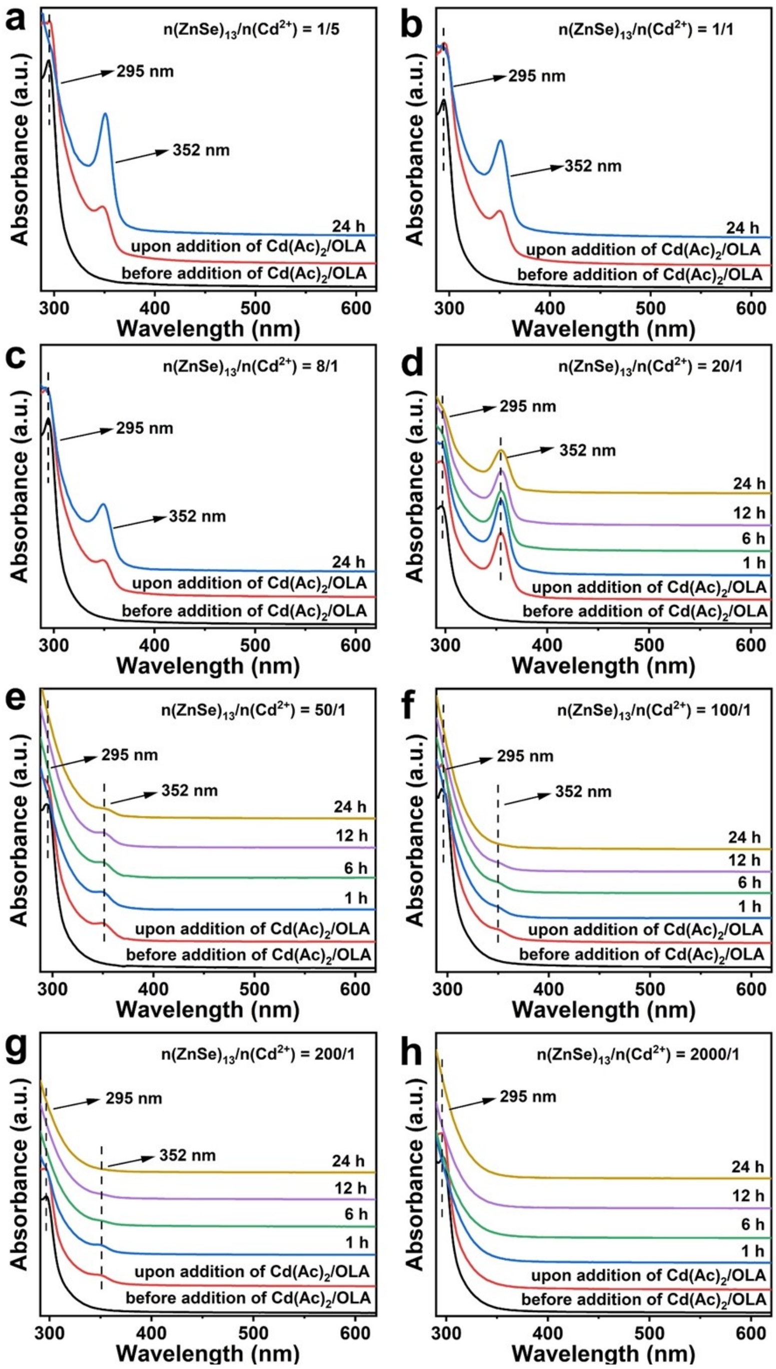

Fig. S9 Evolution of absorption spectrum of $(ZnSe)_{13}$ MSCs in 3.0 mL BDA at 25 °C after adding different amount of $Cd(Ac)_2$/OLA. The amount of $(ZnSe)_{13}$ MSCs (20 μL) is kept as a constant. The molar ratio of $(ZnSe)_{13}$ MSCs to $Cd(Ac)_2$/OLA is changed: 5/1 (a), 1/1 (b), 8/1 (c), 20/1 (d), 50/1 (e), 100/1 (f), 200/1 (g), and 2000/1 (h).