## Supporting information

# Morphology-controlled synthesis of anisotropic wurtzite MnSe nanocrystals: optical and magnetic properties 

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Fig. S1 A low-magnification TEM image of the as-prepared tetrapod-shaped MnSe NCs.


Fig. S2 SAED patterns of WZ-MnSe NCs: (a) tetrapod-shaped MnSe NCs; (b) small waterdrop-shaped MnSe NCs ; (c) large waterdrop-shaped MnSe NCs.


Fig. S3 Aspect ratio histograms of WZ-MnSe NCs: (a) tetrapod-shaped MnSe NCs; (b) small waterdropshaped MnSe NCs; (c) large waterdrop-shaped MnSe NCs.


Fig. S4 (a) XRD patterns of the products synthesized in different reaction temperatures at 0 min . (b) TEM image of the tetrapod-shaped MnSe NCs synthesized at $300^{\circ} \mathrm{C}, 0 \mathrm{~min}$.


Fig. S5 TEM images of the tetrapod-shaped MnSe NCs obtained at medium heating rate ( $15{ }^{\circ} \mathrm{C} / \mathrm{min}$ ), and all scale bars represent 100 nm .


Fig. S6 XRD pattern of the RS-MnSe NCs obtained at OA/OLA volume ratio of $1 / 3$.


Fig. S7 The variation of Néel temperature with different diameters in the anisotropic shaped WZ-MnSe NCs.

