Electronic Supplemental Information

Solution-Phase Growth Mechanism of Phosphorus-Doped MnAs Nanoparticles: Size, Polydispersity and Dopant Control on the Nanoscale

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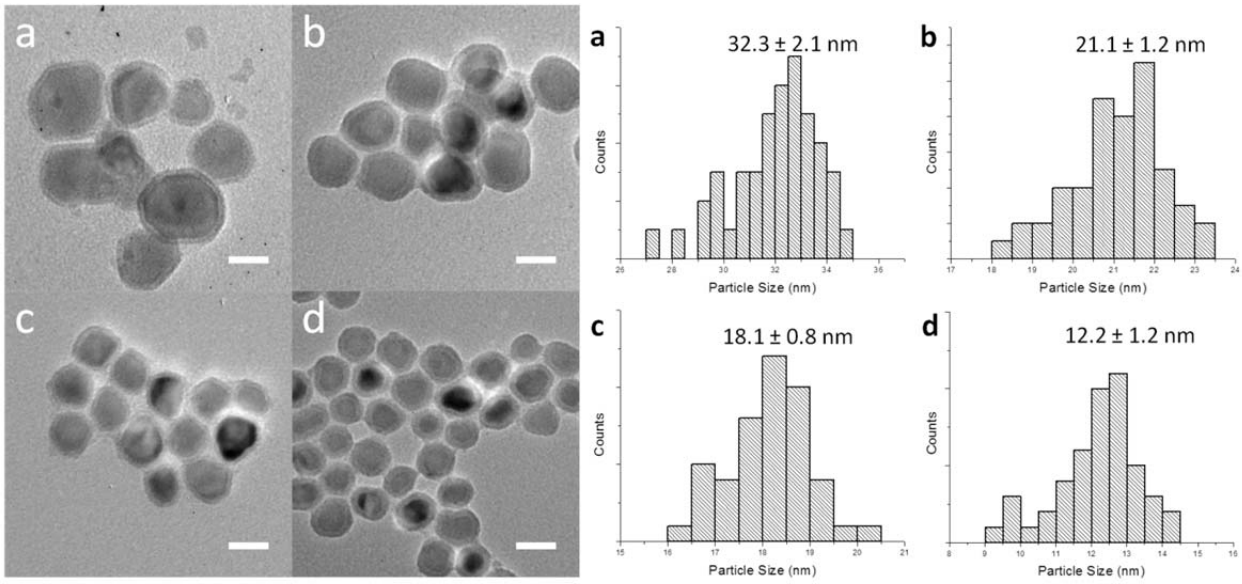

Fig. S1. TEM images and size distribution histograms of synthesized MnAs nanoparticles prepared according to a published procedure[1] (1 mmol Mn and As atomic concentrations, 5 g of TOPO and 10 mL of octadecene) but varying the reaction time: (a) 10 h (b) 5 h (c) 2 h (d) 1 h (the scale bar is 20 nm).

References.

1. Y. Zhang, R. Regmi, Y. Liu, G. Lawes and S. L. Brock, *ACS Nano*, 2014, **8**, 6814-6821.

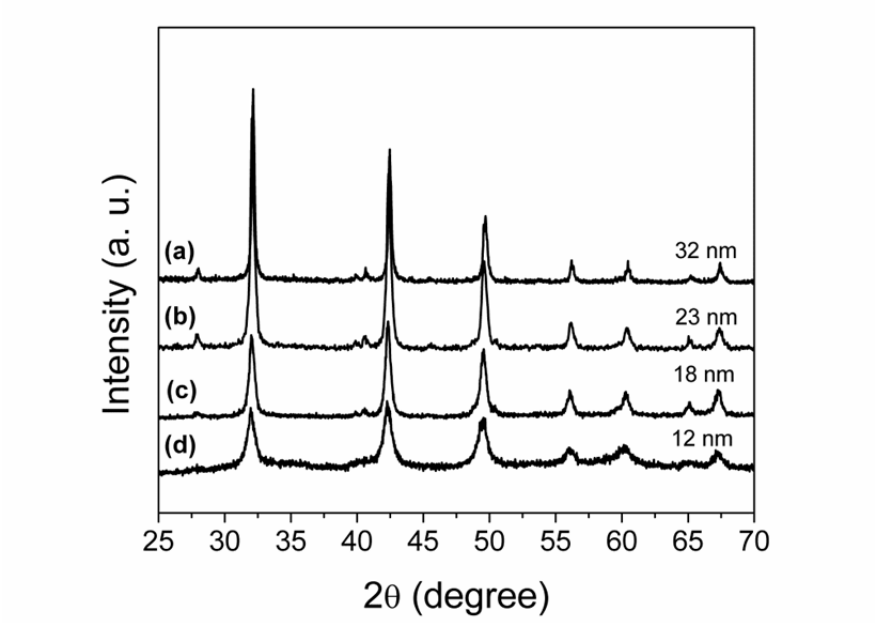

Fig. S2. The XRD patterns of synthesized MnAs nanocrystals prepared according to published methods[1] (1 mmol Mn and As atomic concentrations, 5 g of TOPO and 10 mL of octadecene) but varying the reaction time: (a) 10 h (b) 5 h (c) 2 h (d) 1 h. The drop lines indicate the reference spectrum of the β-MnAs (PDF# 71-0923). The crystallite size achieved by application of the Scherrer equation is indicated.

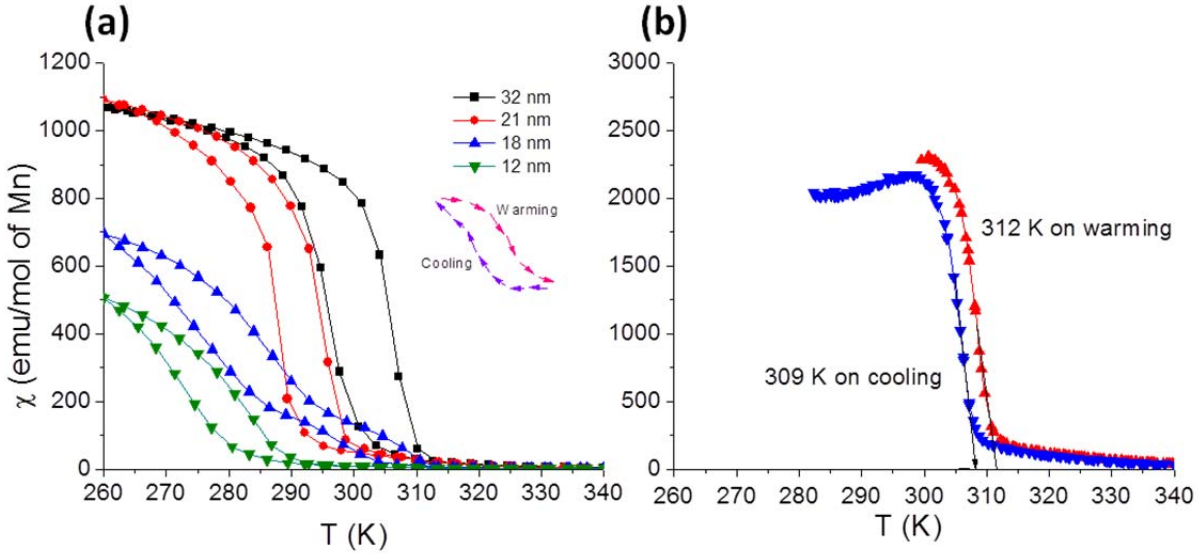

Fig. S3. Comparison of the temperature dependent magnetic susceptibility (magnetic susceptibility per mole of Mn) for (a) type-B MnAs nanocrystals (from 12 to 32 nm) and (b) type-A MnAs nanoparticles (22 nm). The temperature dependent magnetic susceptibility of 21 nm type-B MnAs nanocrystals adopting the β structure was previously reported.[1] The presence of two transitions in the 18 nm samples may reflect a small degree of type-A impurity (with a higher T_C).