

Supporting Information

A Solventless Thermolysis Route to Large-Scale Production of Ultra-Small Hydrophilic and Biocompatible Magnetic Ferrite Nanocrystals and Their Application for Efficient Protein Enrichment

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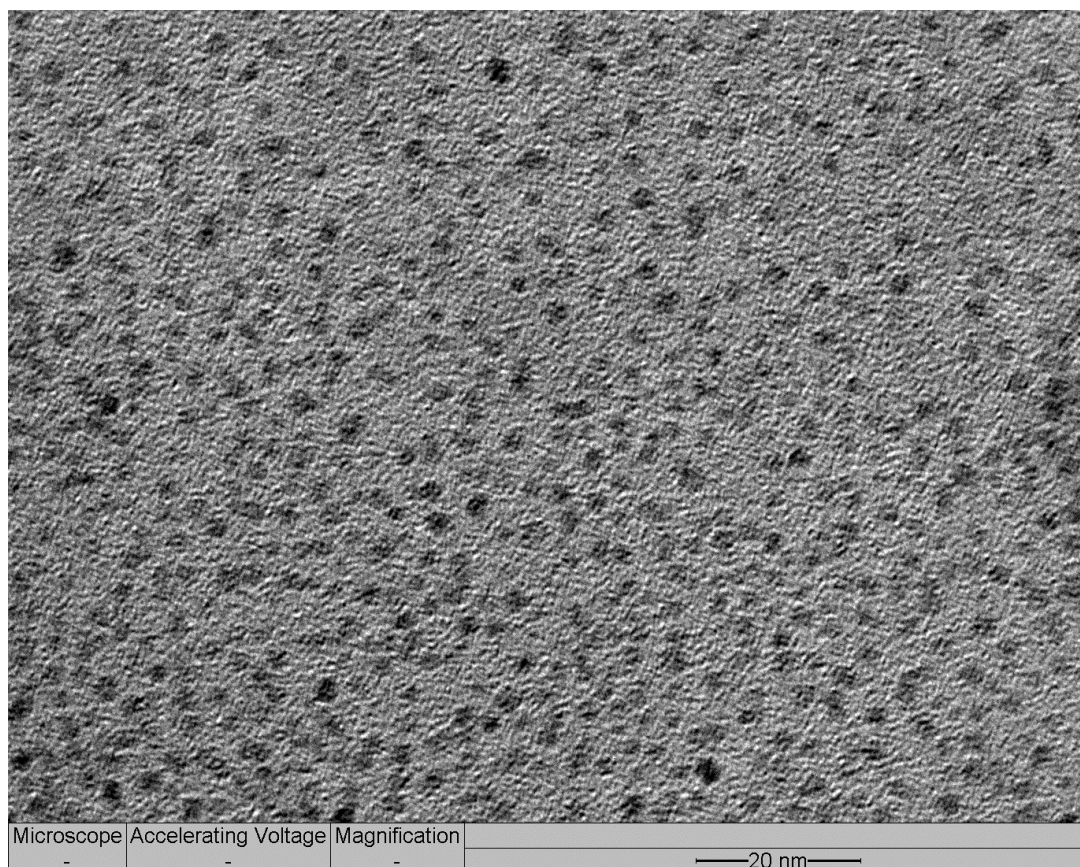


Fig. S1 Low magnification TEM image of MNPs_SC10, showing the relative uniform distribution of the ultra-small nanoparticles.

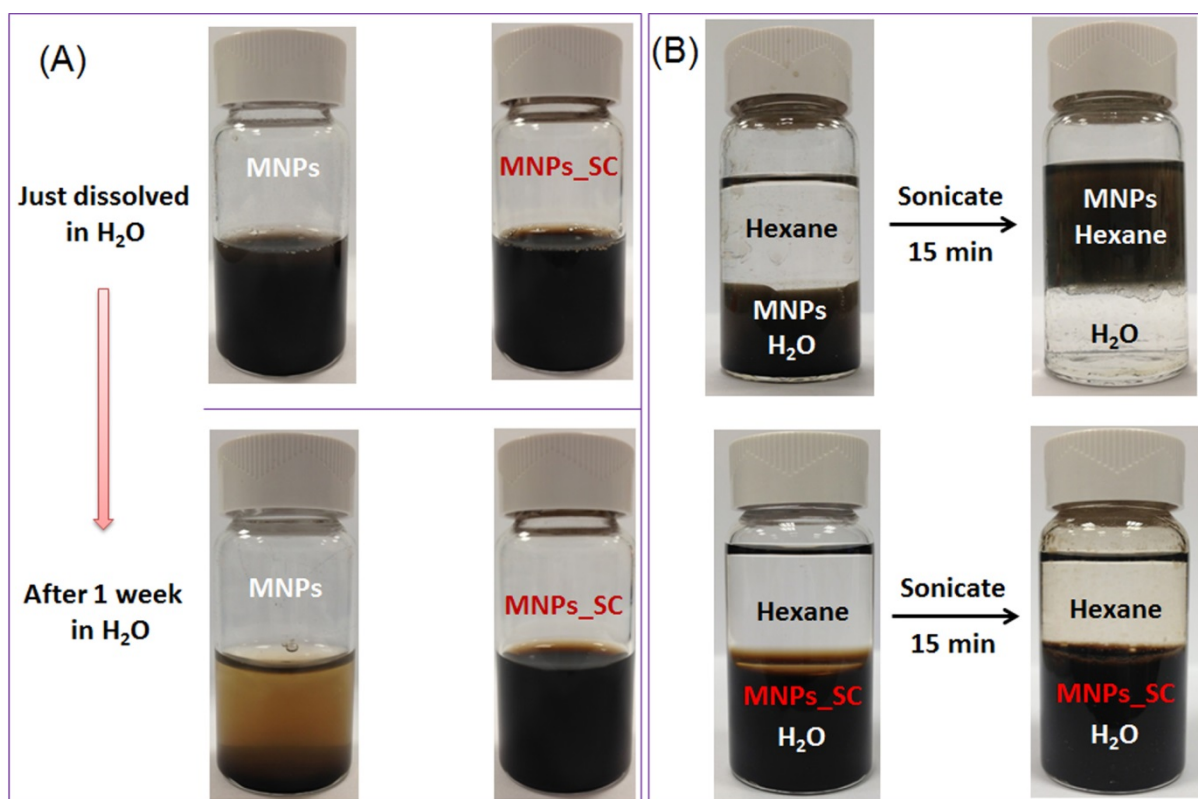


Fig. S2 (A) Hydrophilicity related aqueous dispersion of MNPs and MNPs_{SC}. (B) MNPs and MNPs_{SC} in a water/hexane system. After sonication, MNPs readily migrated into the hexane layer but MNPs_{SC} retained in the water layer.

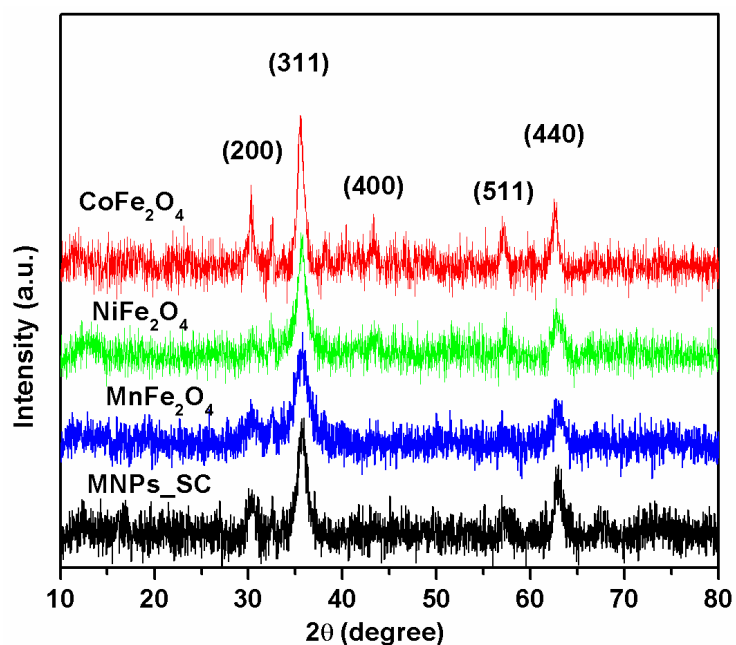


Fig. S3 Powder XRD patterns of the MNPs_{SC} and mixed metal ferrite nanoparticles of MnFe₂O₄, NiFe₂O₄, and CoFe₂O₄.

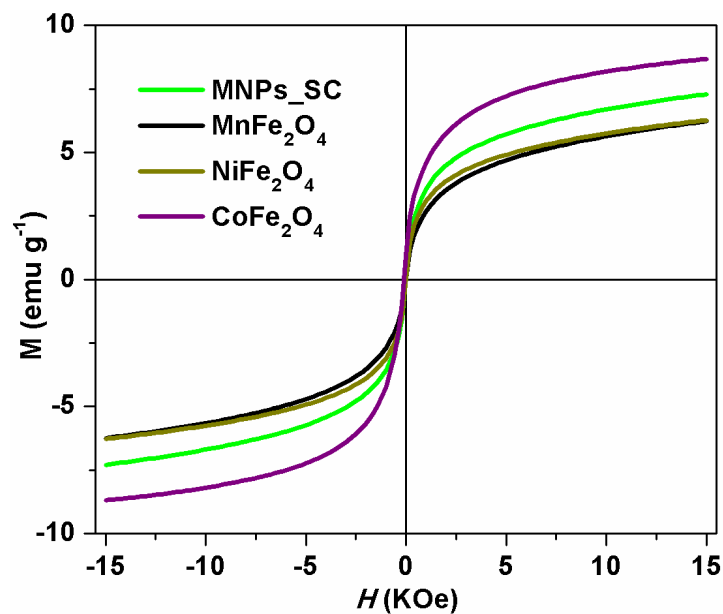


Fig. S4 Magnetic behaviors of MNP_s_SC and metal ferrite nanoparticles of MnFe₂O₄, NiFe₂O₄ and CoFe₂O₄. The curves were measured using a vibrating sample magnetometer at 298 K. All M values were obtained by dividing the electromagnetic unit (emu) values by the total weight of nanoparticles (including the core and ligands).

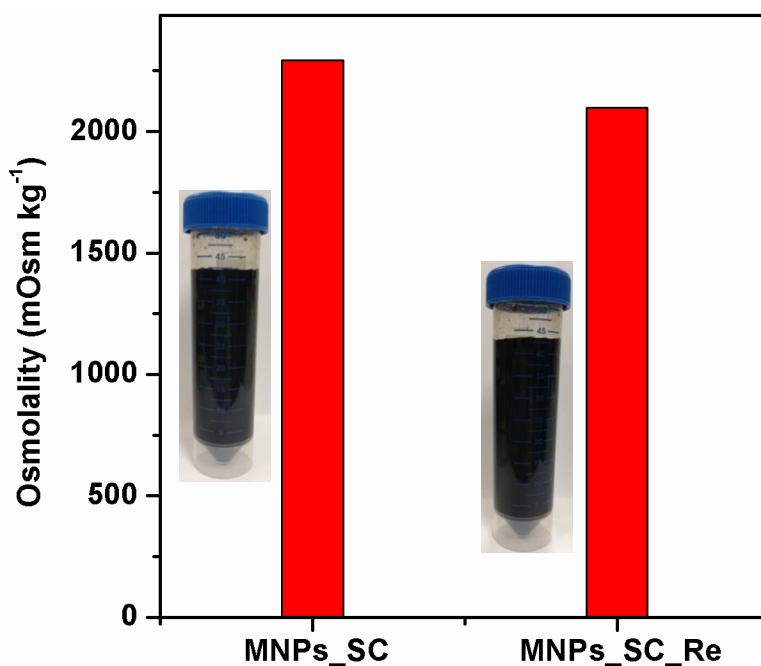


Fig. S5 Osmolality and photos of the nanoparticle dispersions before protein enrichment (MNP_s_SC) and after regeneration *via* magnetic collection and ultrafiltration after the protein enrichment (MNP_s_SC_Re).