Supporting information

Synthesis of sub-100 nm biocompatible superparamagnetic Fe_3O_4 colloidal nanocrystal clusters as contrast agents for magnetic resonance imaging

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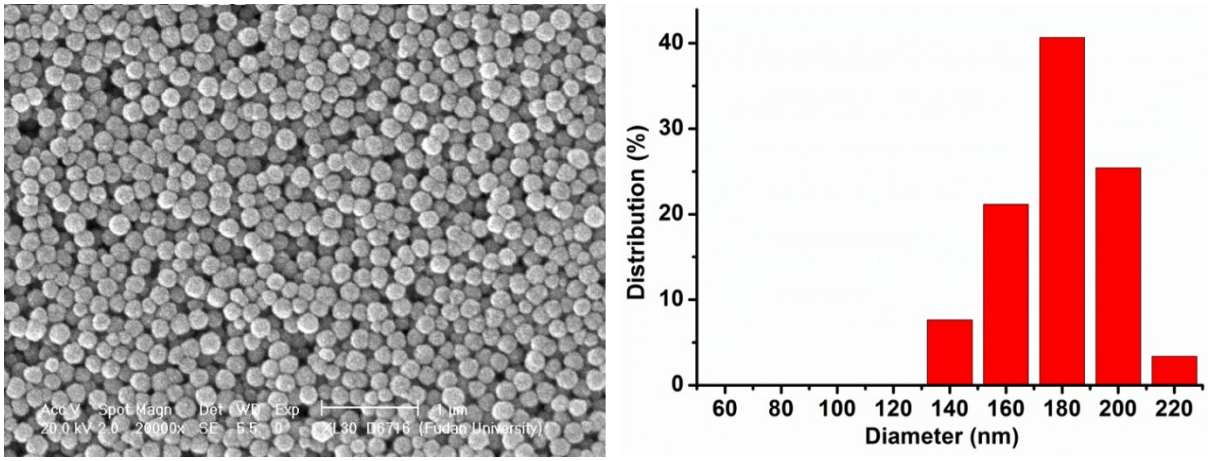

Fig. S1. SEM image and corresponding size distribution plot of 180 nm colloidal superparamagnetic nanocrystal clusters.

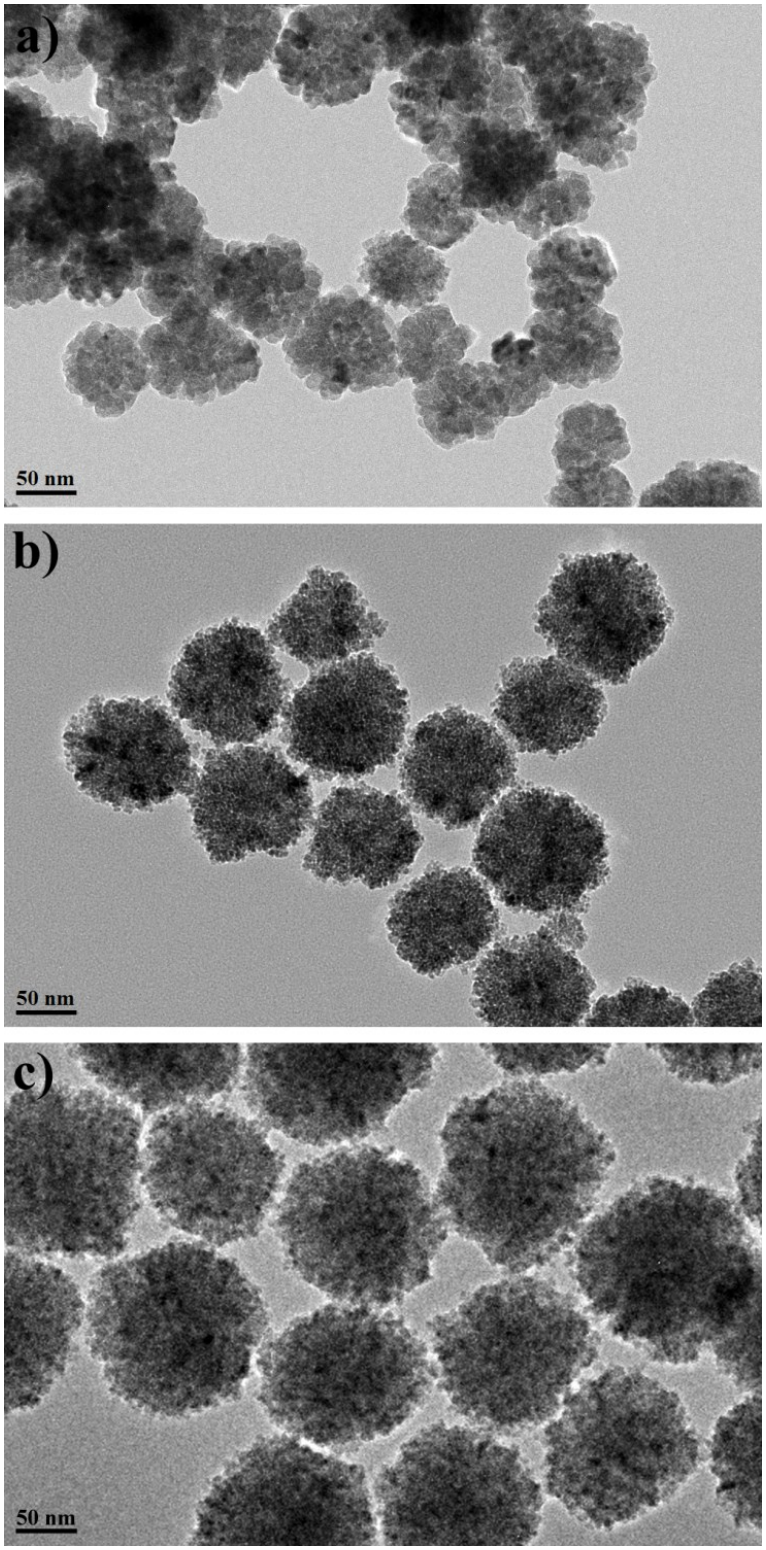

Fig. S2. TEM images of (a) 70 nm, (b) 100 nm and (c) 130 nm colloidal superparamagnetic nanocrystal clusters.

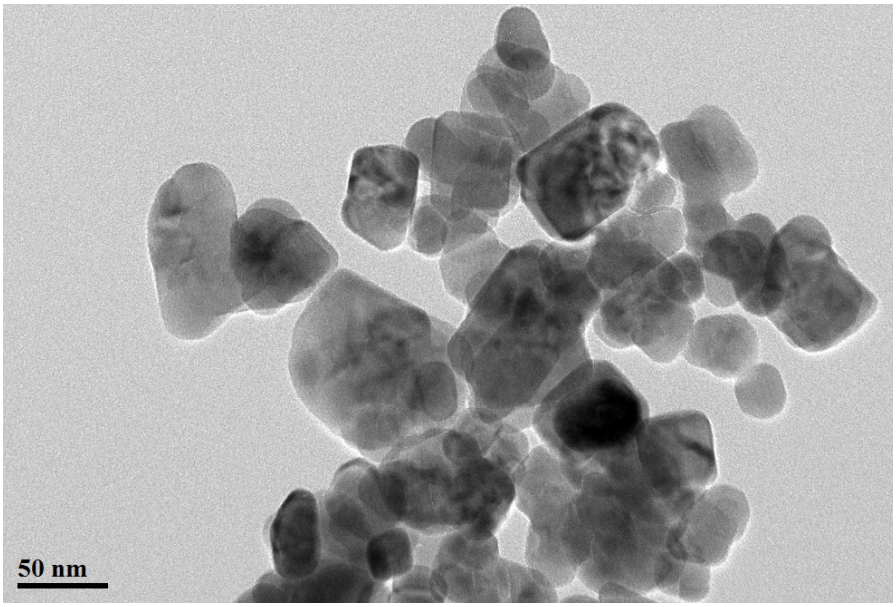

Fig. S3. TEM image of the sample with the content of water increased to 4.0 mL. Irregular nanoparticles are obtained.

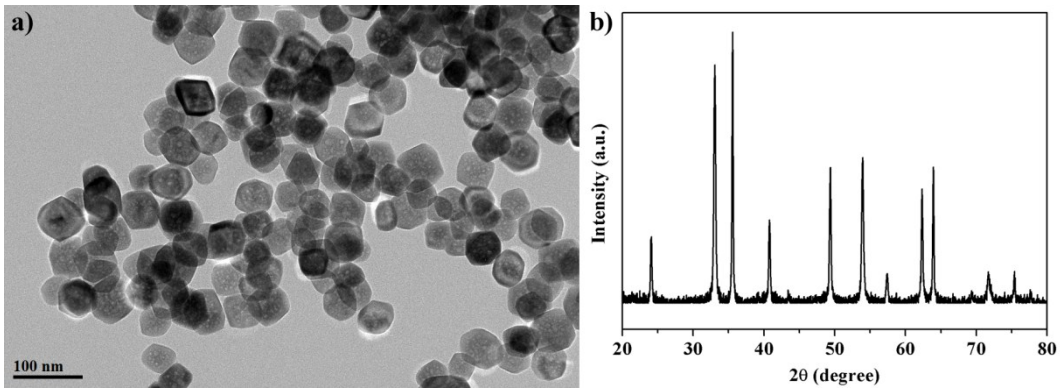

Fig. S4. TEM image (a) and XRD pattern (b) of α-Fe_2O_3 nanoparticles. Uniform α-Fe_2O_3 nanoparticles would be obtained when pure water was used as the solvent.

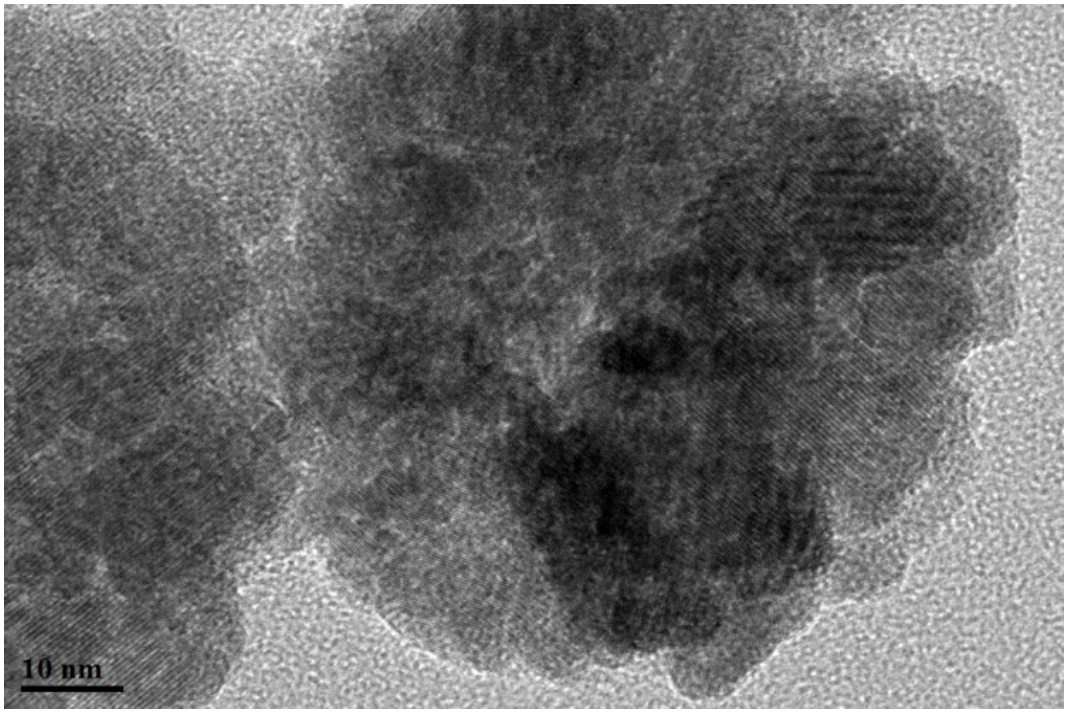

Fig. S5. The HRTEM image of 70 nm colloidal superparamagnetic nanocrystal clusters.

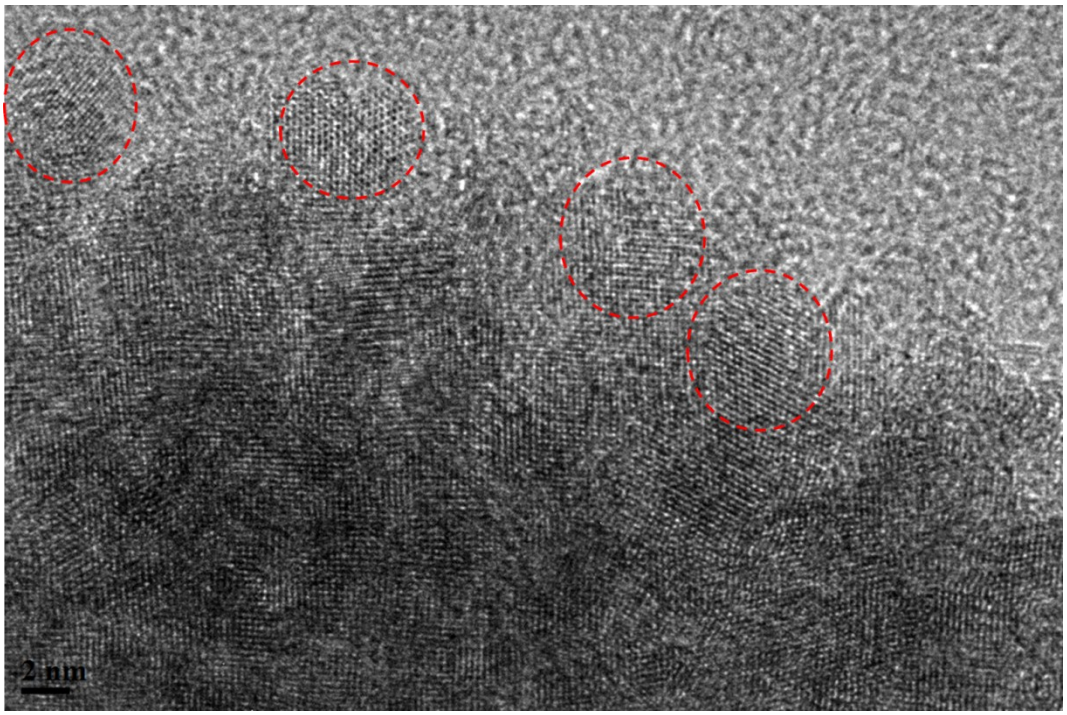

Fig. S6. The HRTEM image of 85 nm colloidal superparamagnetic nanocrystal clusters. The individual particles are marked by the red dash lines.

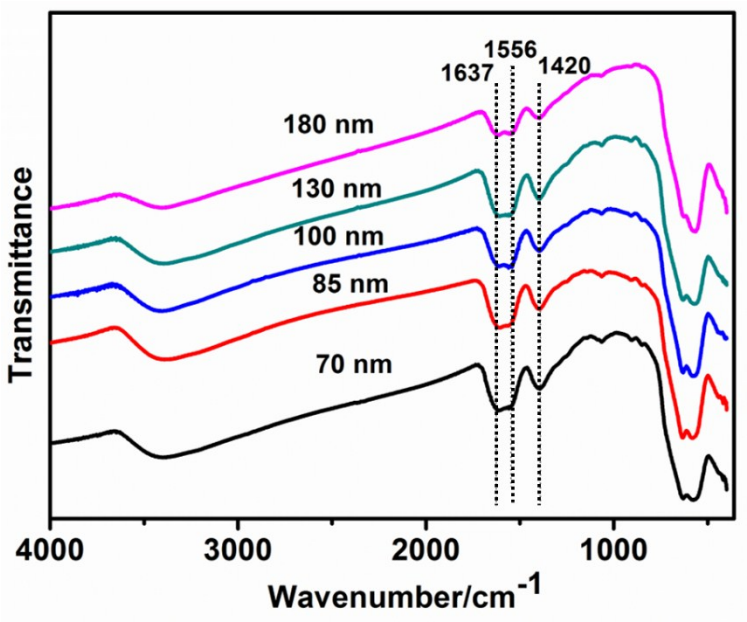

Fig. S7. FT-IR spectra of SPNCs with different sizes.

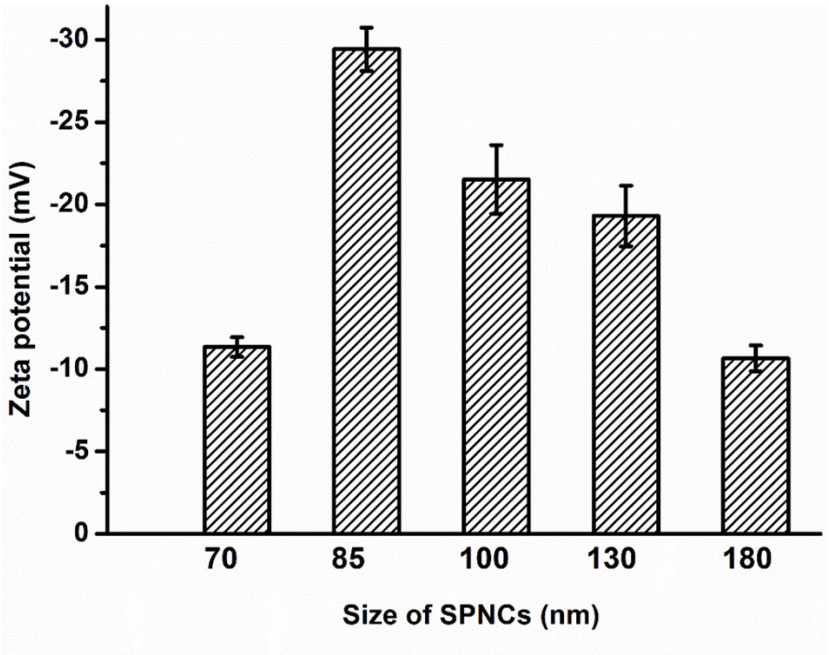

Fig. S8. Zeta potentials of SPNCs with different sizes.

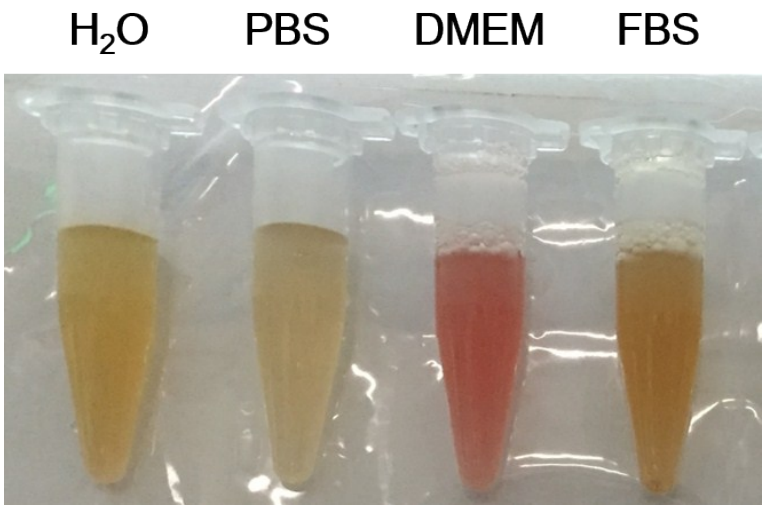

Fig. S9. The colloidal stability of 85 colloidal superparamagnetic nanocrystal clusters in H_2O, PBS, DMEM and FBS at the concentration of 50 μg mL^{-1} for 1 h.

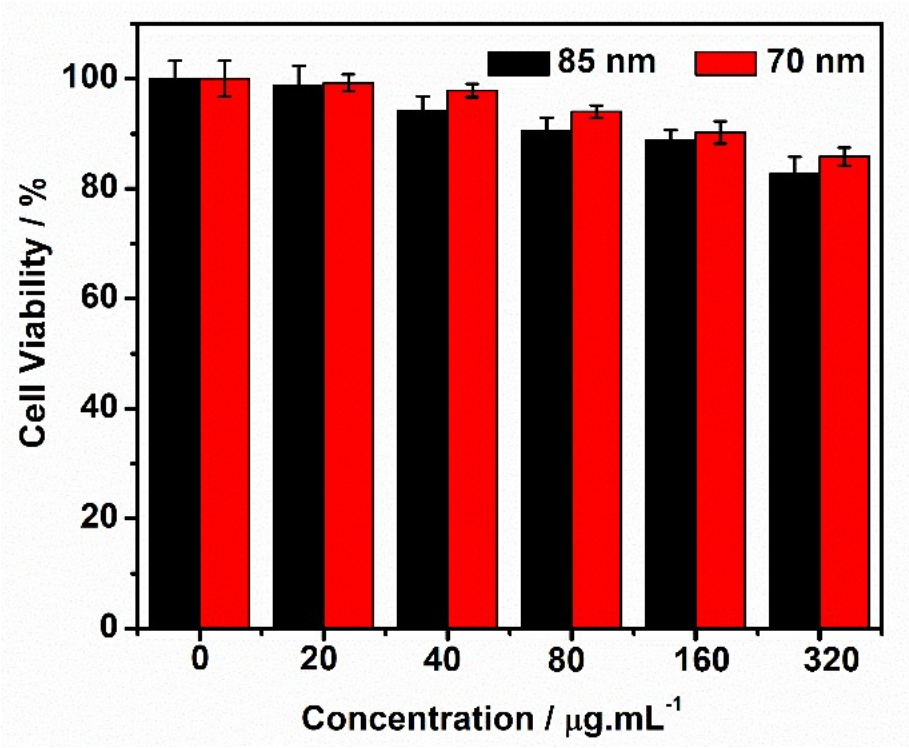

Fig. S10. *In vitro* viability of MCF-7 cells incubated with 85 nm and 70 nm colloidal superparamagnetic nanocrystal clusters for 24 h.