Supporting Information for

Construction of Polymer Coated Core-Shell Magnetic Mesoporous Silica Nanoparticles with Triple Responsive Drug Delivery

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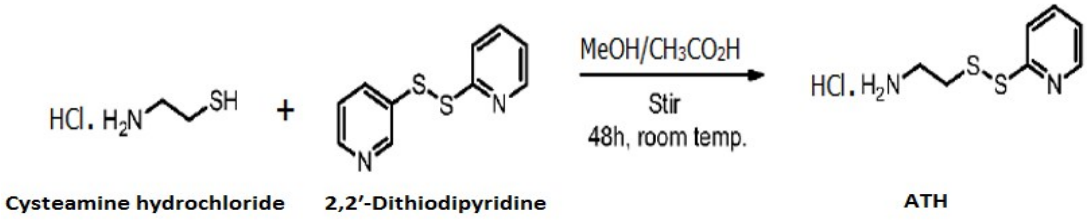
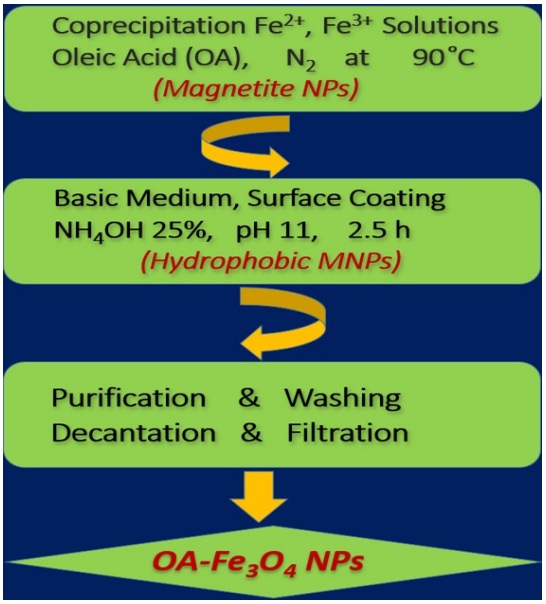
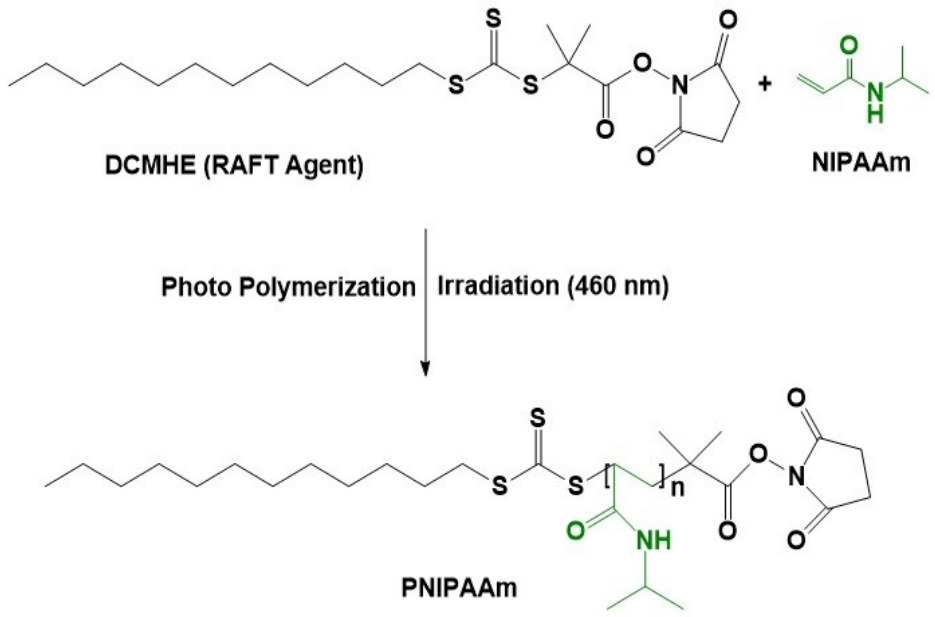


Scheme S1. Synthetic Route of S-(2-aminoethylthio)-2-thiopyridine hydrochloride (Py-SS-NH_2).



Scheme S2. Synthesis of oleic acid coated magnetite nanoparticles by chemical coprecipitation (main steps).



Scheme S3. Schematic illustration of Photo-polymerization of NIPAAm via PET-RAFT polymerization.

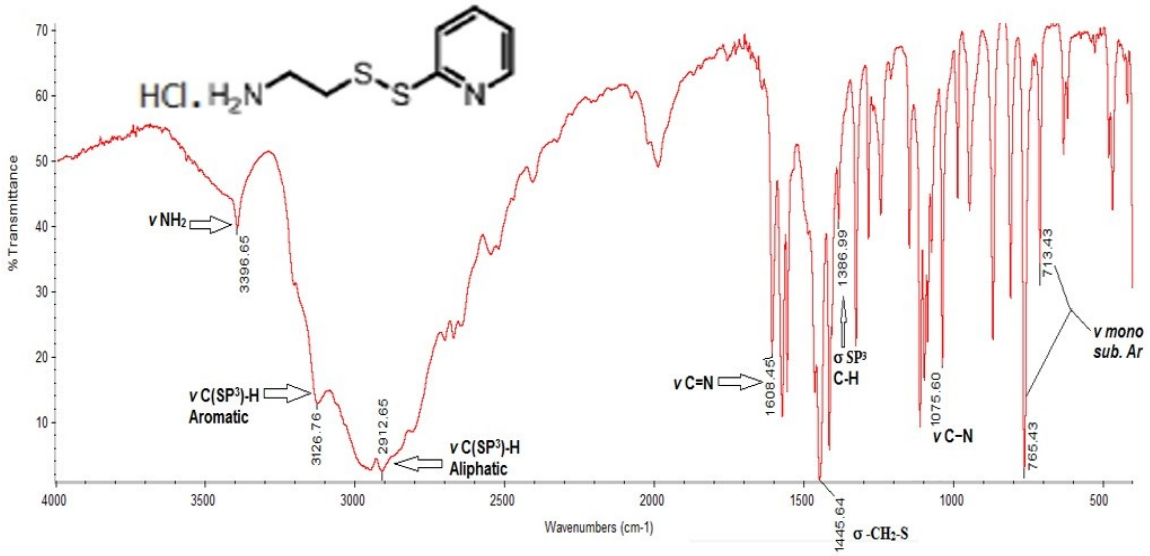


Figure S1. FTIR spectrum of S-(2-aminoethylthio)-2-thiopyridine hydrochloride (Py-SS-NH_2).

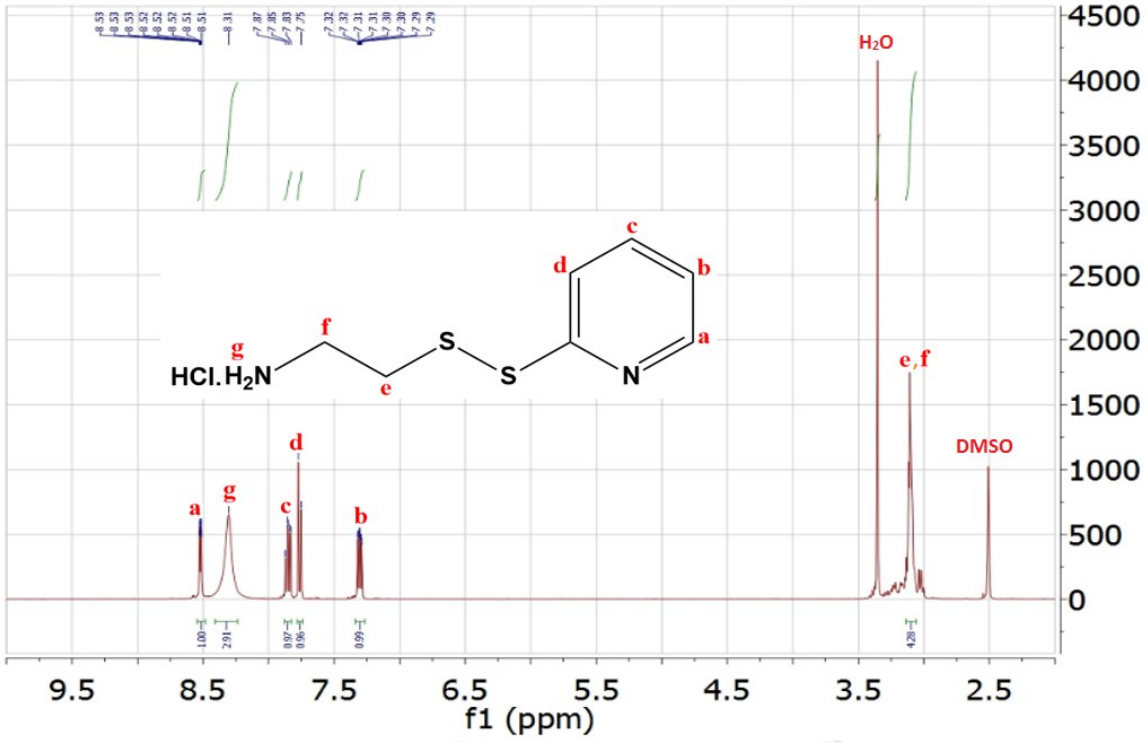


Figure S2. ^{1}H NMR spectrum of S-(2-aminoethylthio)-2-thiopyridine hydrochloride with 400 MHz in DMSO-d_6.

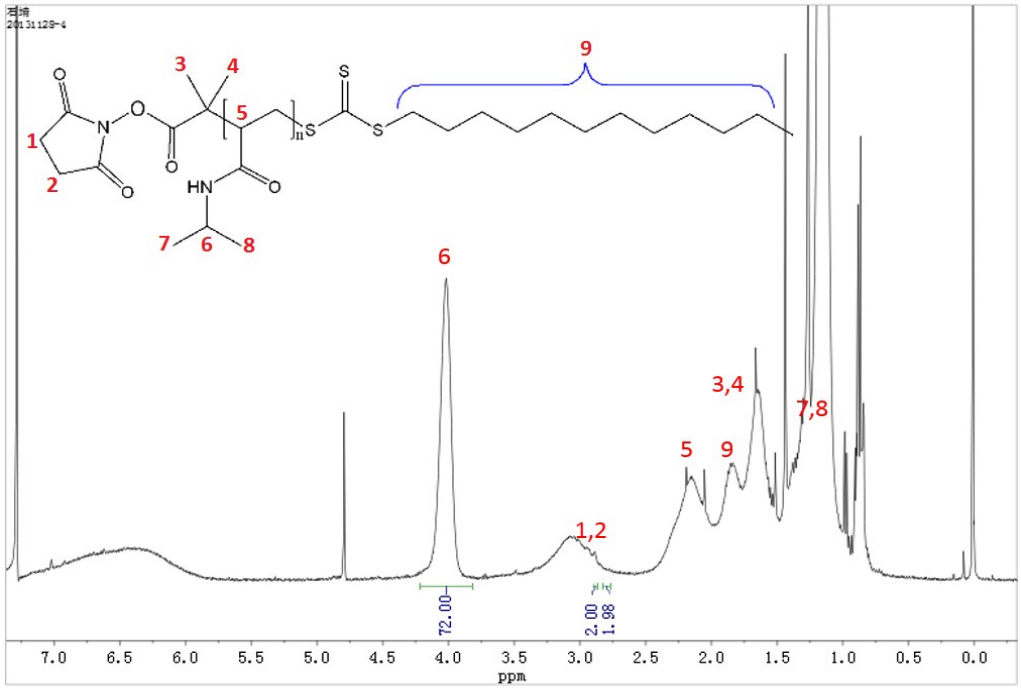


Figure S3. ^{1}H NMR spectrum of PNIPAAm (monomer number: 72, Mn: 8609 g/mol) via DMAHE RAFT agent in $CDCl_3$, 400 MHz.

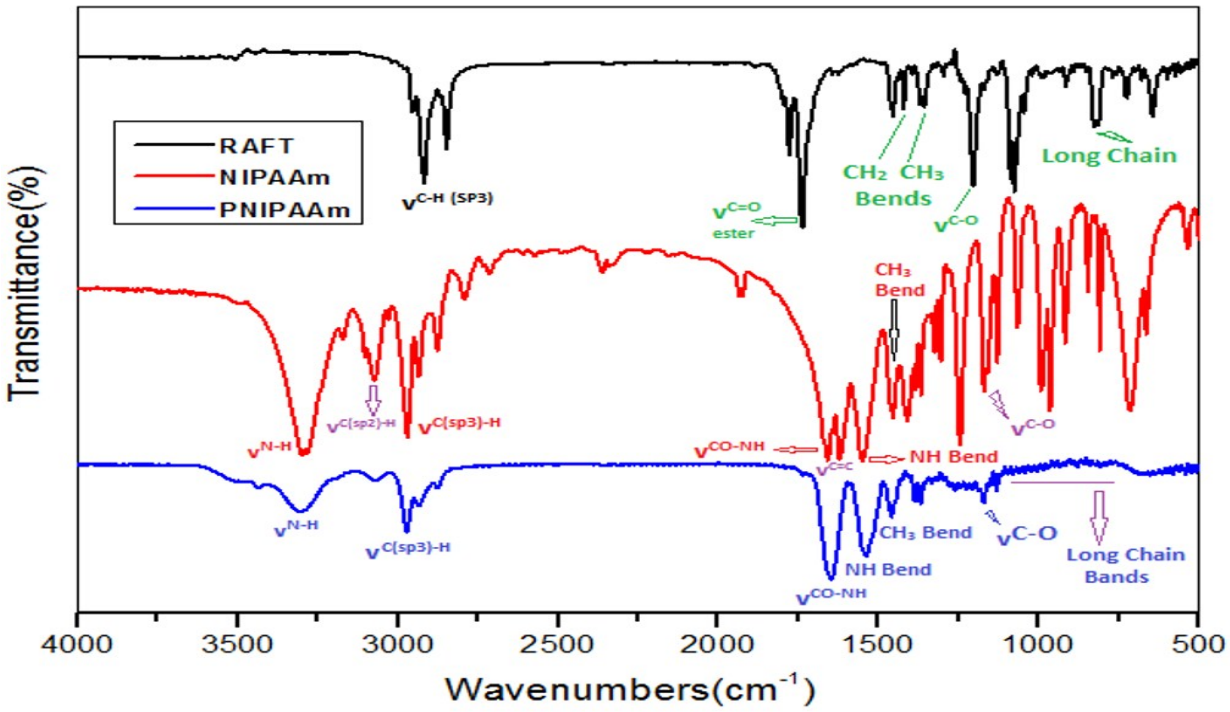


Figure S4. FTIR Spectra of RAFT agent, NIPAAm monomer and PNIPAAm polymer.

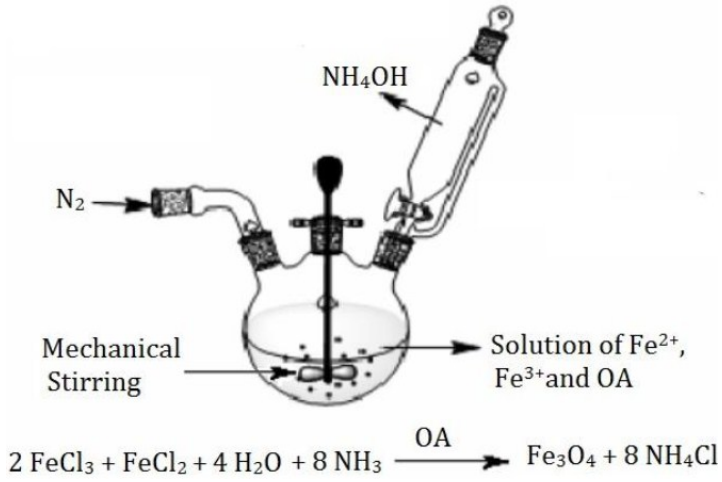


Figure S5. Reactor and reaction equation for preparation of oleic acid-capped hydrophobic magnetite (OA-Fe_3O_4).

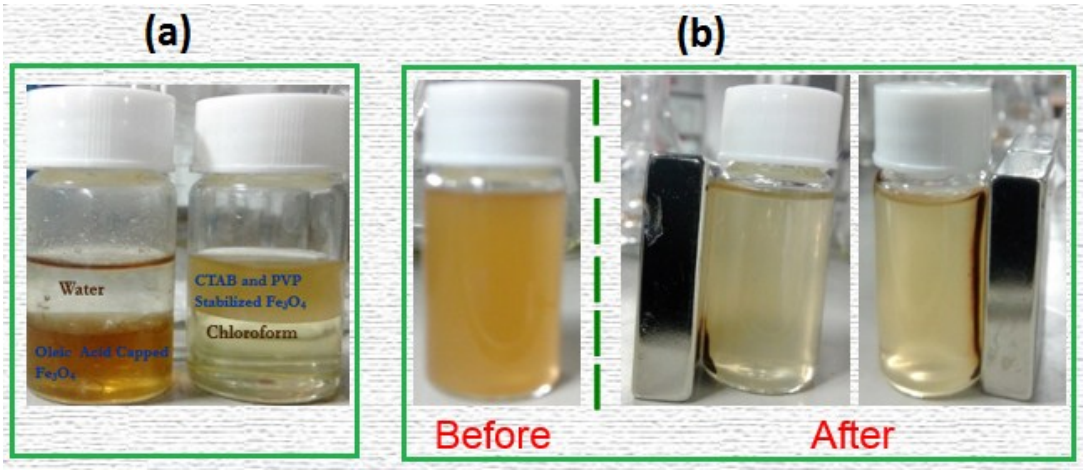


Figure S6. (a) The photographs of transferring to aqueous medium, (left) as-synthesized oleic acid capped Fe_3O_4 NPs dispersed in chloroform, while (right) CTAB/PVP stabilized Fe_3O_4 NPs in water. (b) The photographs of MMSNPs-SH nanoparticles that can be easily and rapidly separated from suspensions using an external magnetic field.

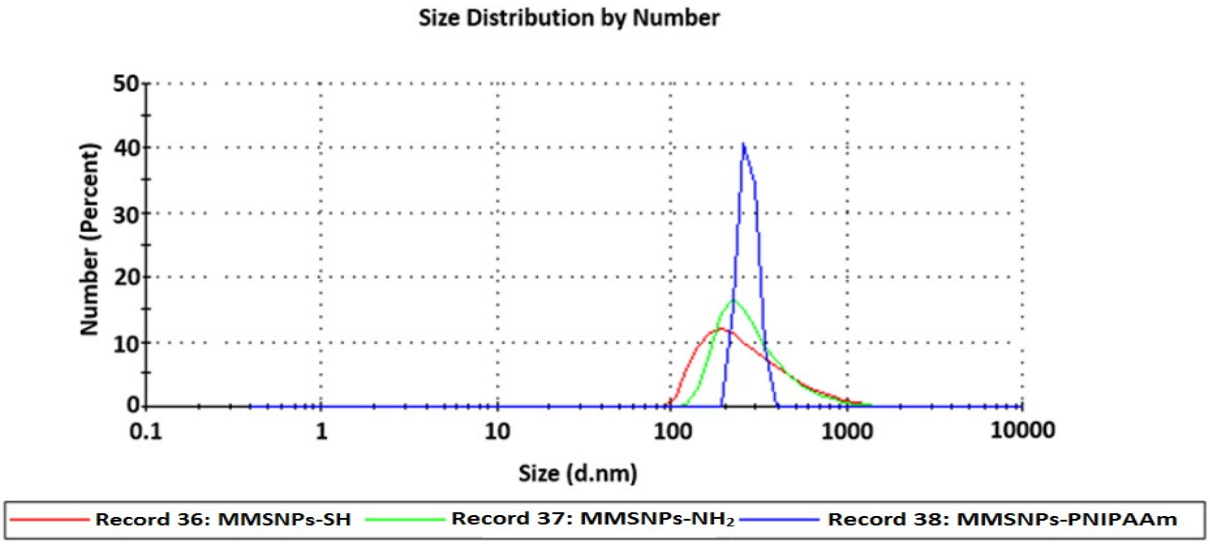


Figure S7. DLS profiles at room temperature for MMSNPs-SH (red, 190 nm), MMSNPs-NH_2 (green, 220 nm) and MMSNPs-PNIPAAm (blue, 255 nm).

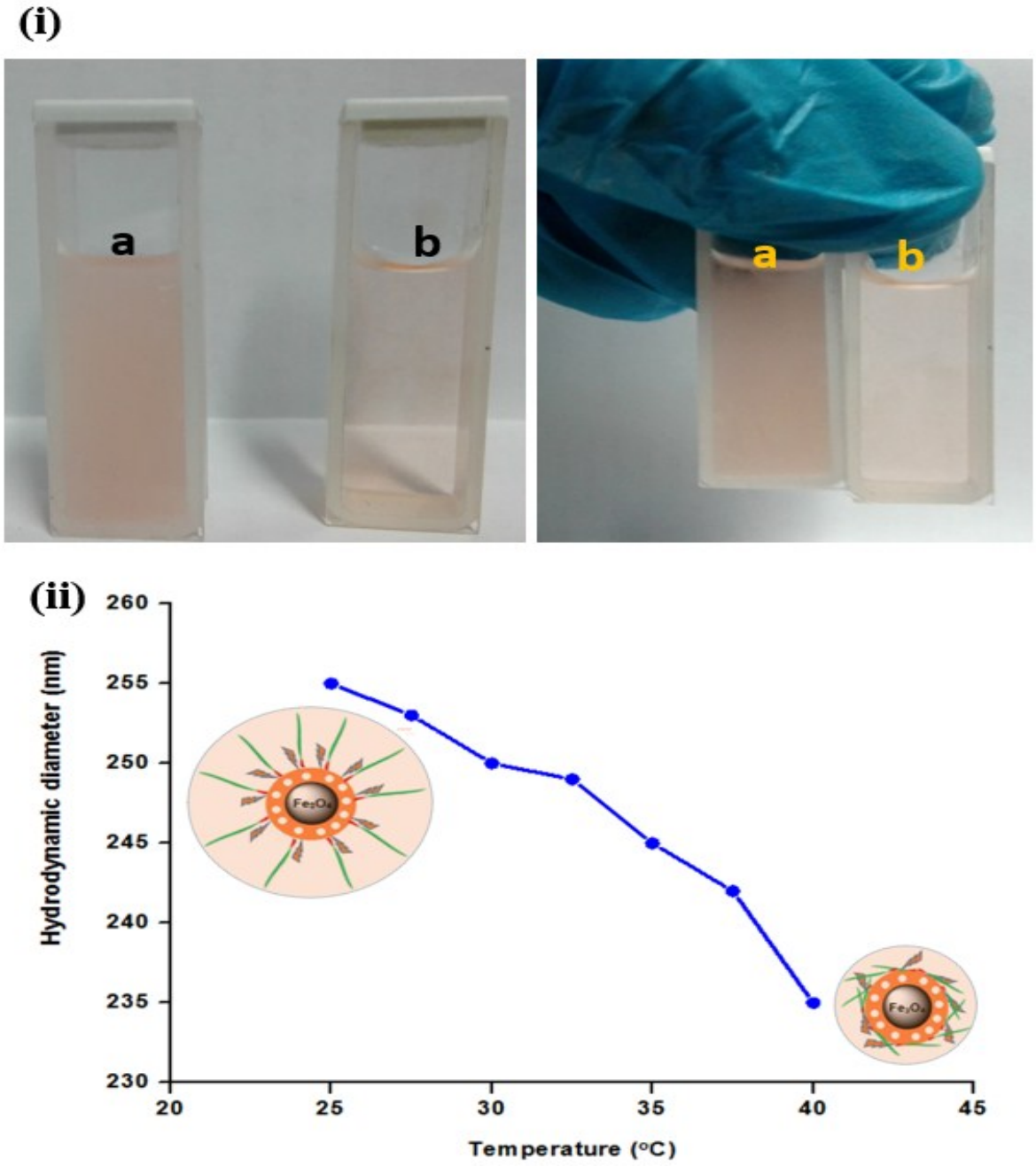


Figure S8. (i) Optical transmittance of MMSNPs-PNIPAAm above the LCST at 40 °C (a) and below the LCST at 25 °C (b). (ii) Hydrodynamic diameter of the core-shell MMSNPs-PNIPAAm NPs against temperature.

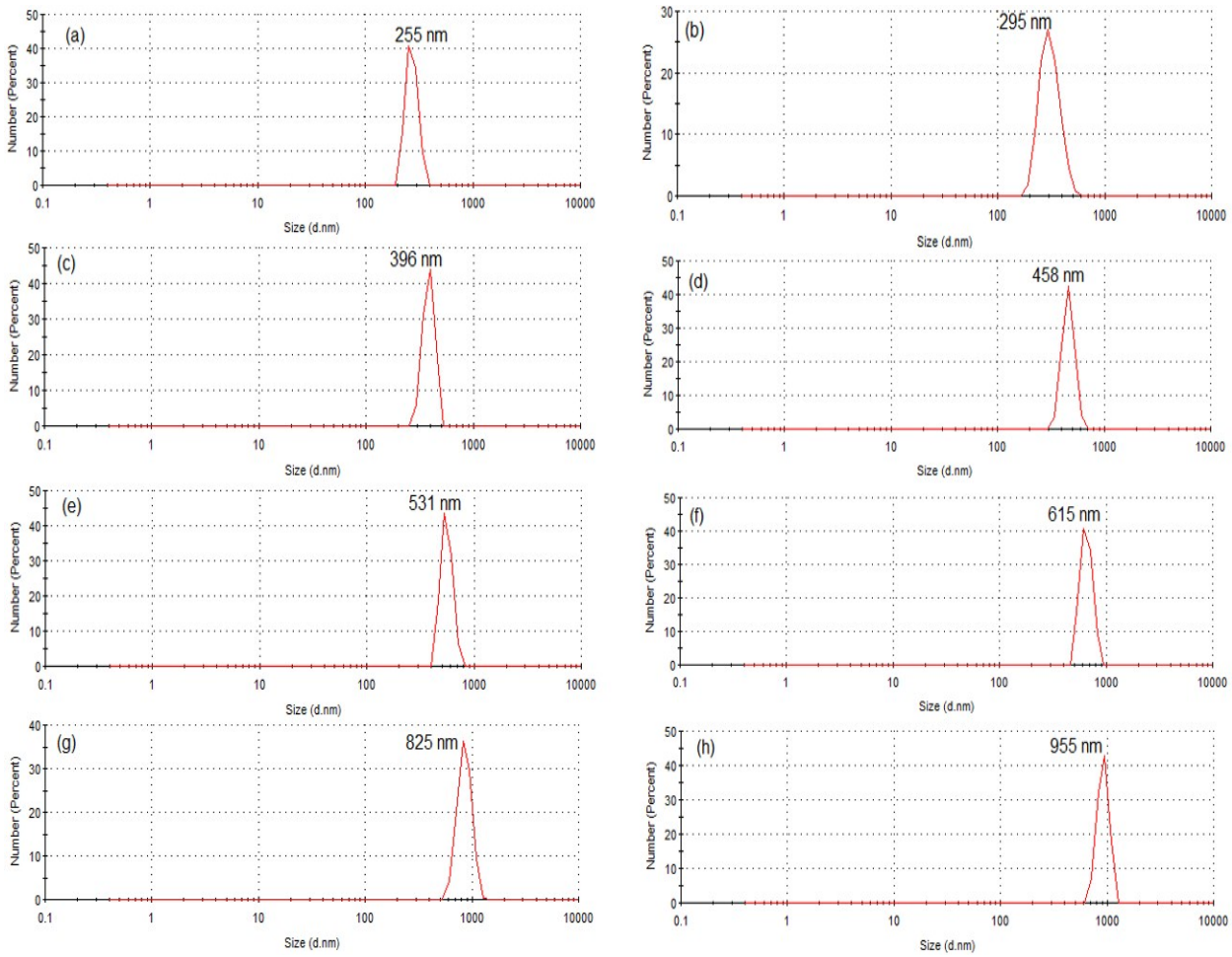


Figure S9. Dynamic Light Scattering of the MMSNPs-PNIPAAm nanoparticles after treating with 10 mM TCEP for 0 h (a), 0.25 h (b), 1 h (c), 2 h (d), 3 h (e), 4 h (f), 8 h (g) and 24 h (h).

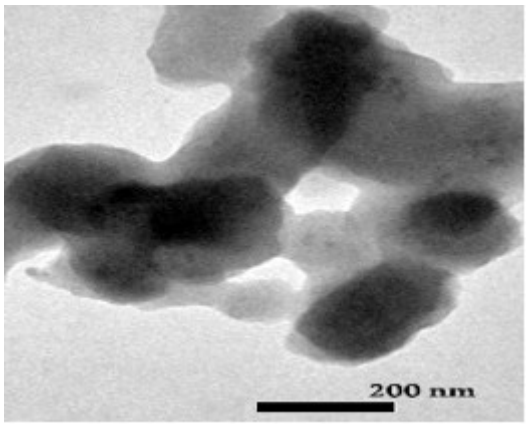


Figure S10. TEM image of the aggregated nanoparticles after adding 10 mM of TCEP.

Table S1. Structure parameters of MMSNPs-SH, MMSNPs-NH_2, and MMSNPs-PNIPAAm determined by N_2 adsorption/desorption isotherms. The drop in surface area and the decrease of pore distribution of polymer coated nanoparticles supports that the polymeric coating was effective.

Sample	BET Surface Area (m^2/g)	Mesopore Volume (ml/g)	Average Pore Size (nm)
MMSNPs-SH	**726**	**0.96**	**8.42**
MMSNPs-NH_2	**463**	**0.64**	**6.39**
MMSNPs-PNIPAAm	**287**	**0.22**	**5.71**