Electronic Supplementary Material (ESI) for Polymer Chemistry

Supporting Information

A versatile Fe_3O_4 based platform via iron-catalyzed AGET ATRP: towards various multifunctional nanomaterials

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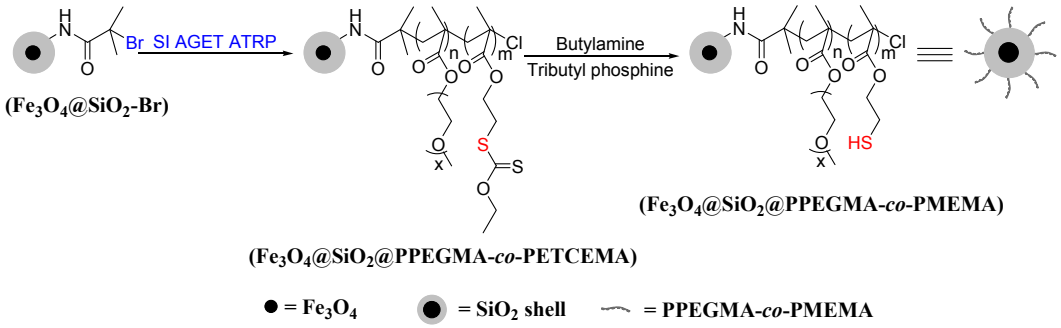

Scheme S1. Synthetic route of the precursor consisting of thiol groups towards various multifunctional NPs by iron-mediated AGET ATRP.

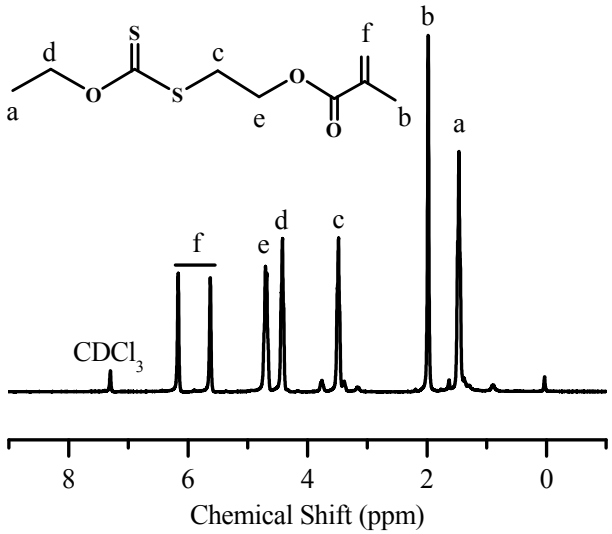

Fig. S1 ^{1}H NMR spectrum of monomer ETCEMA.

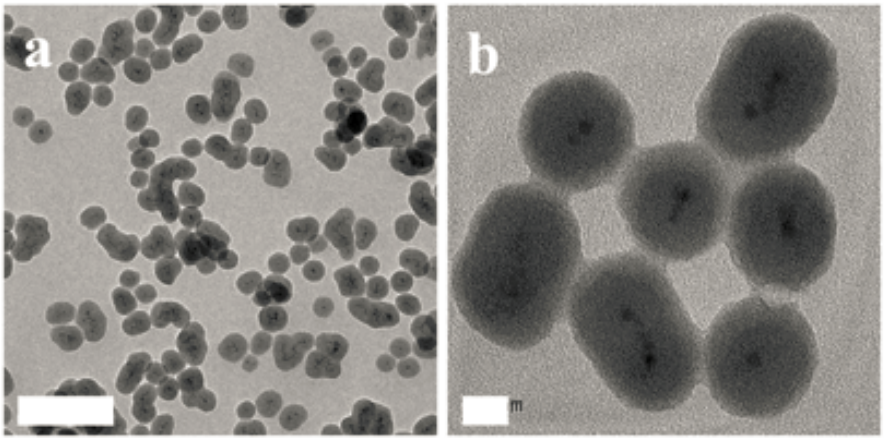

Fig. S2 TEM of (a) Fe_3O_4@SiO_2@Br and (b) Fe_3O_4@SiO_2@PPEGMA-*co*-ETCEMA; scale bars are 200 and 20 nm for a and b, respectively.

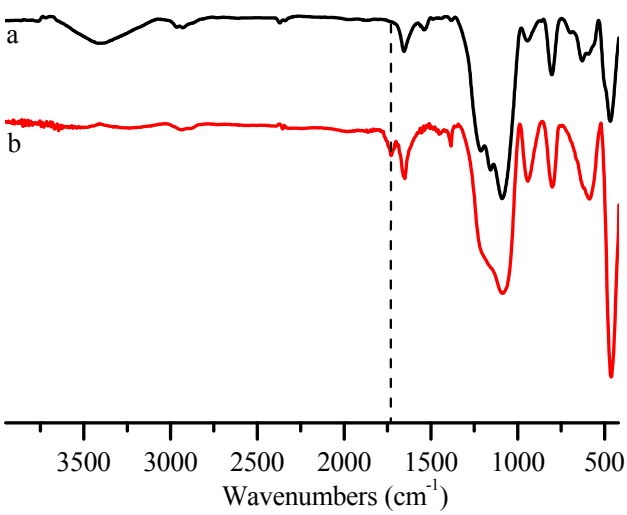

Fig. S3 FT-IR spectra of NPs of (a) Fe_3O_4@SiO_2-Br, (b) Fe_3O_4@SiO_2@PPEGMA-co-PETCEMA.

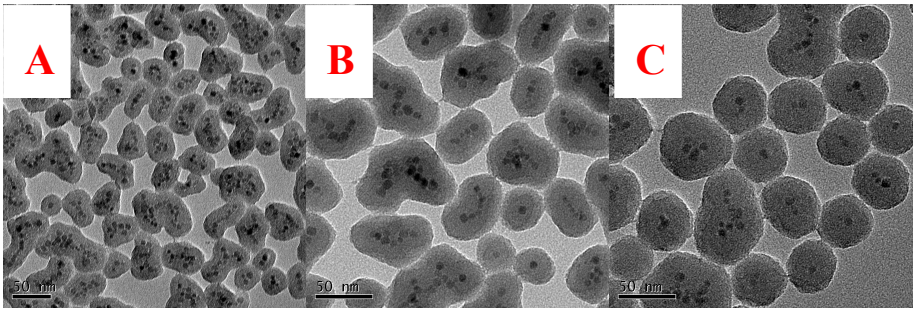

Fig. S4 TEM images of Fe_3O_4@SiO_2 with different silica feeding dose of 0.1, 0.2 and 0.4 mL for (a), (b) and (c) respectively. Scale bars are 50 nm.

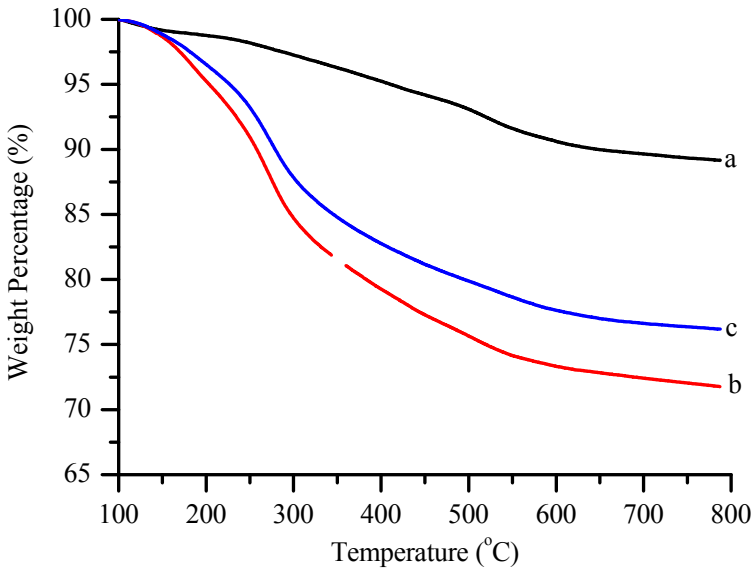

Fig. S5 TGA curves of NPs of (a) Fe_3O_4@SiO_2-Br, (b) Fe_3O_4@SiO_2@PPEGMA-*co*-PETCEMA and (c) Fe_3O_4@SiO_2@PPEGMA-*co*-PMEMA.

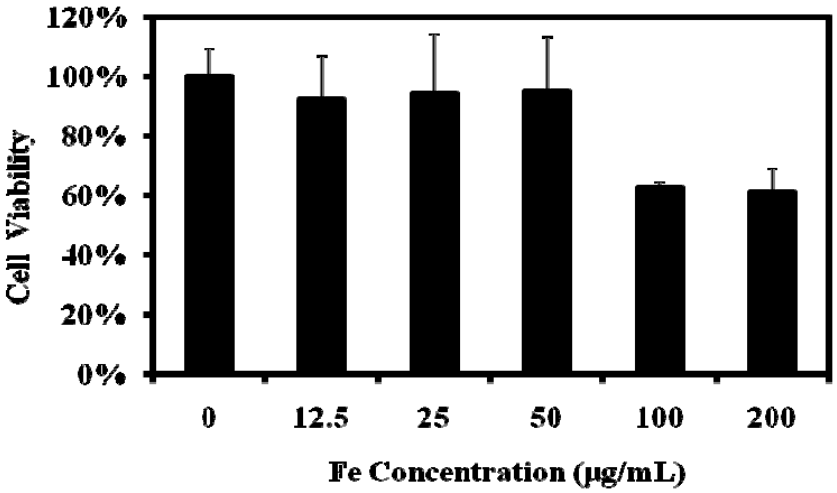

Fig. S6 Cell viability of Fe_3O_4@SiO_2@PPEGMA-*co*-PMEMA with different iron concentration.

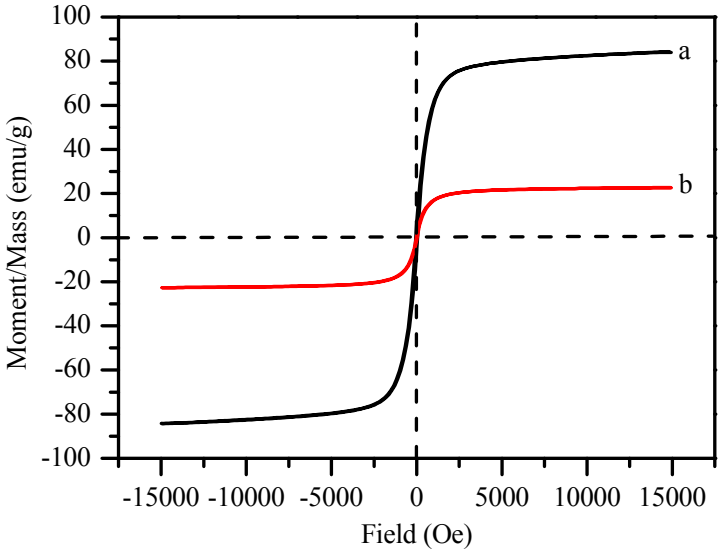

Fig. S7 Magnetic hysteresis loops at 300K of (a) Fe_3O_4 and (b) Fe_3O_4@SiO_2 NPs.

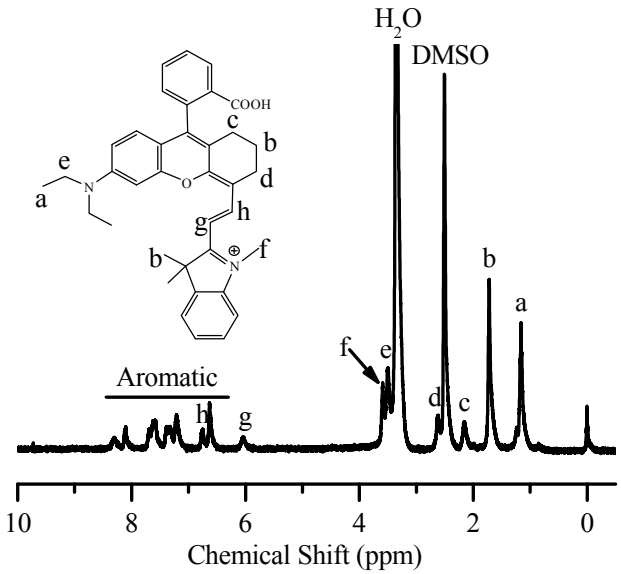

Fig. S8 ^{1}H NMR spectrum of CS-2.

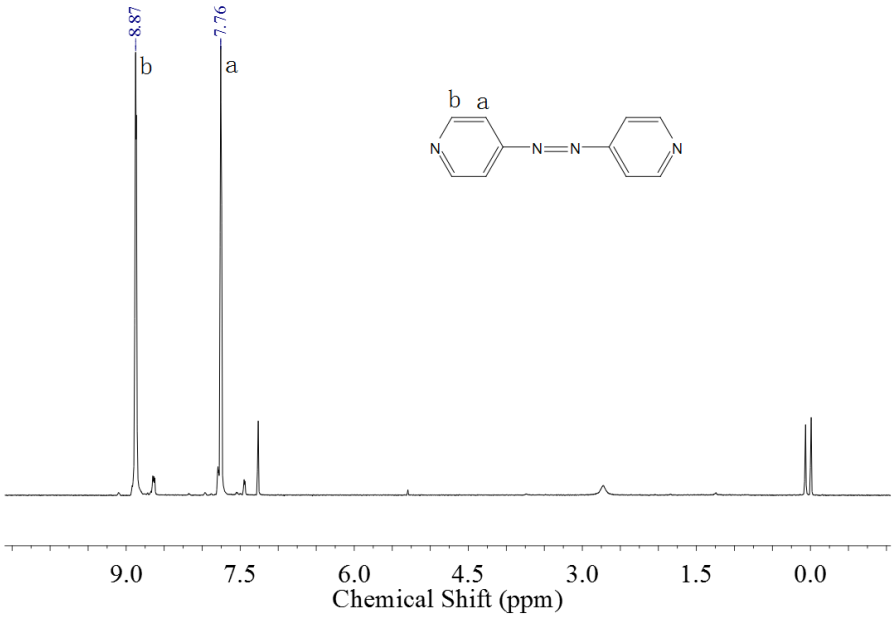

Fig. S9 ^{1}H NMR spectrum of azopyridine.

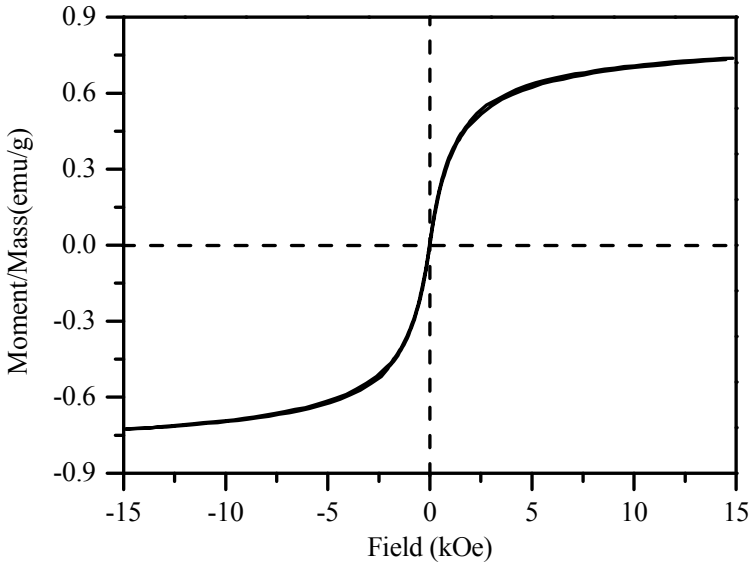

Fig. S10 Magnetic hysteresis loops at 300K of the as-prepared Fe_3O_4@SiO_2@PPEGMA-*co*-PMEMA@CS2 NPs.

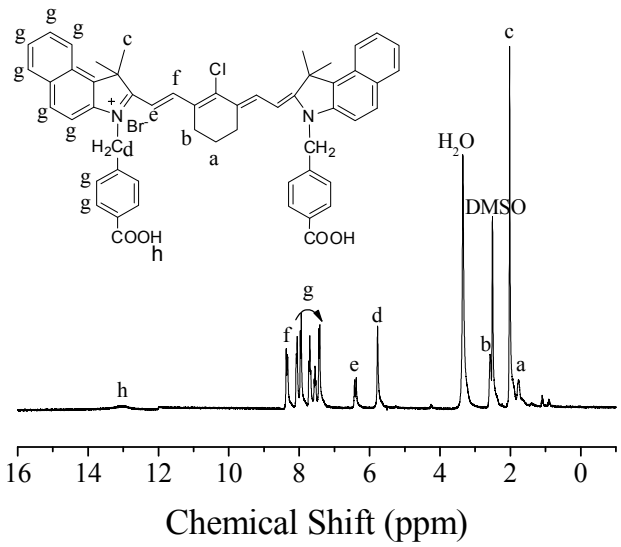

Fig. S11 ^{1}H NMR spectrum of IR825.

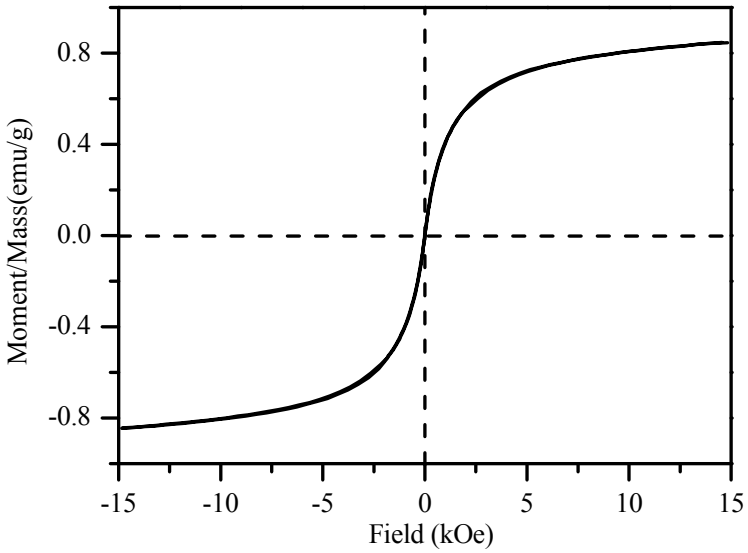

Fig. S12 Magnetic hysteresis loops at 300K of the as-prepared Fe_3O_4@SiO_2@PPEGMA-*co*-PMEMA@IR825 NPs.

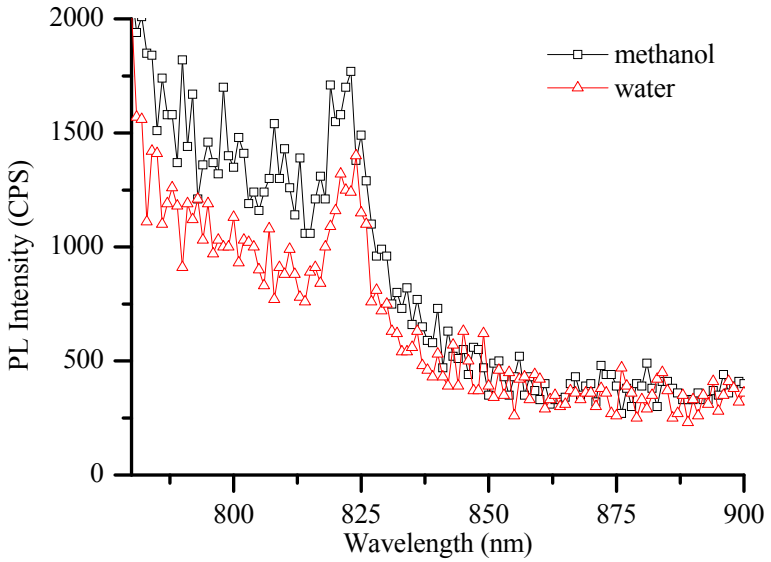

Fig. S13 Fluorescence spectra of Fe_3O_4@SiO_2@PPEGMA-*co*-PMEMA@IR825 NPs in methanol and water. Both samples were tested at iron concentration of 0.025 mg/mL.