

Electronic Supplementary Information (ESI)

Multifunctional triple-porous $\text{Fe}_3\text{O}_4@\text{SiO}_2$ superparamagnetic microspheres for potential hyperthermia and controlled drug release

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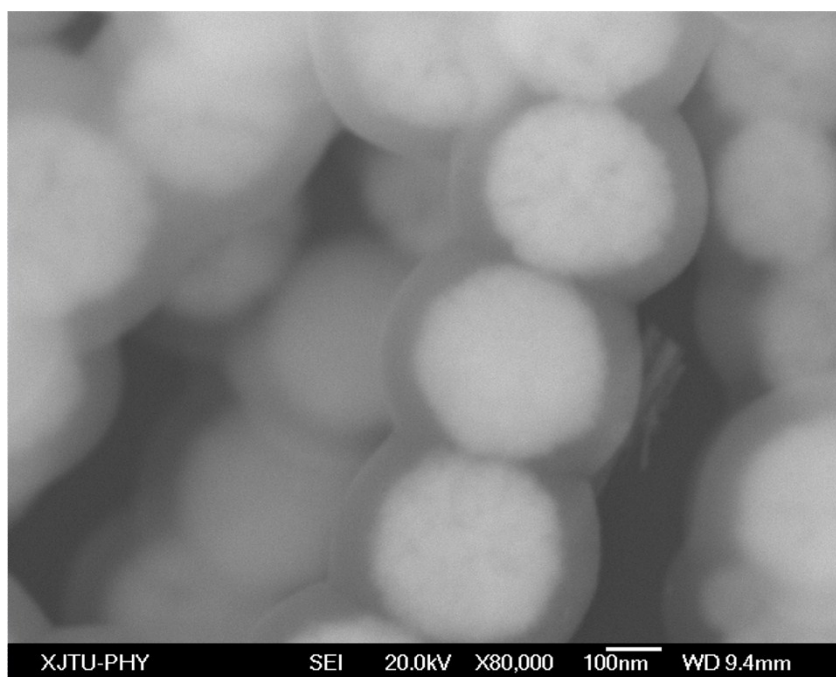


Fig. S1 SEM image for $m\text{-Fe}_3\text{O}_4@\text{CTAB}/\text{SiO}_2$ microspheres.

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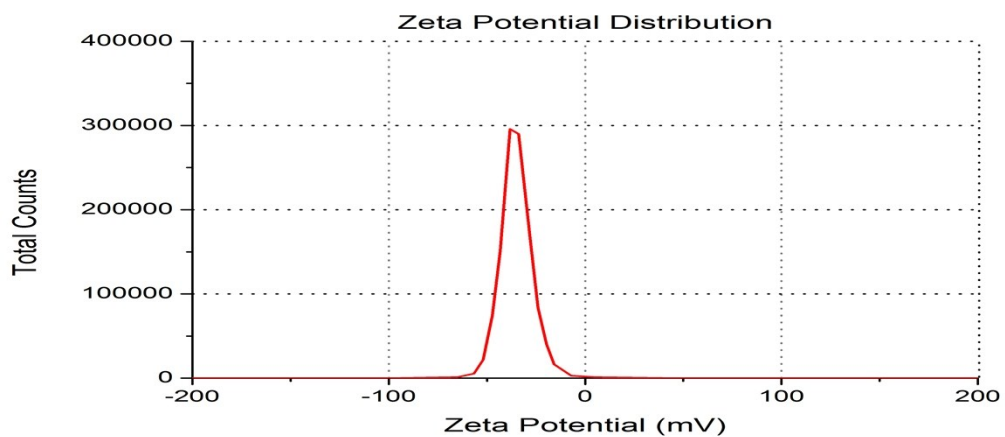


Fig. S2 Zeta potential distribution of the initial prepared $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2$ microspheres in aqueous solution.

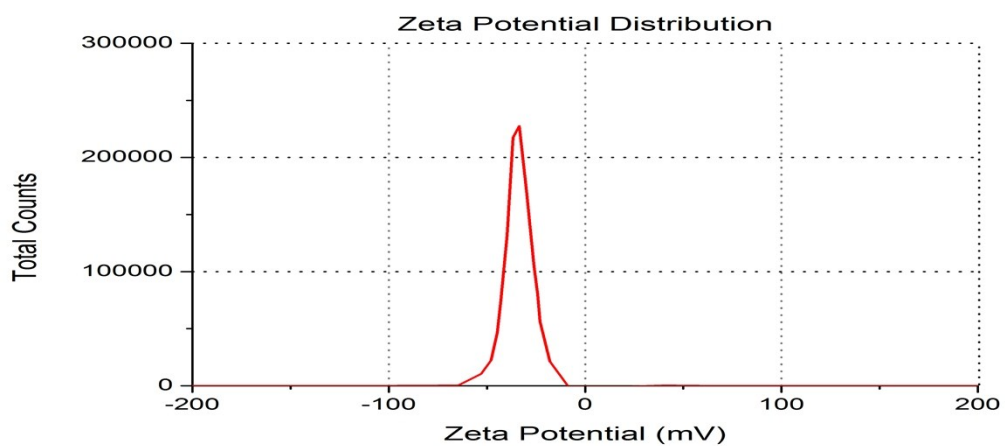


Fig. S3 Zeta potential distribution of the $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2$ microspheres in aqueous solution after being stored for 30 days.

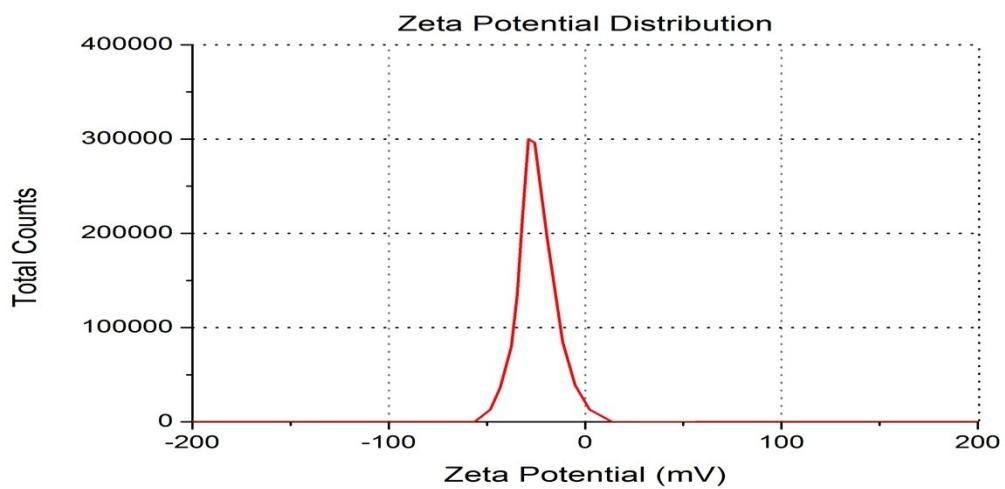


Fig. S4 Zeta potential distribution of the $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2$ microspheres in PBS buffer solution at pH 7.4.

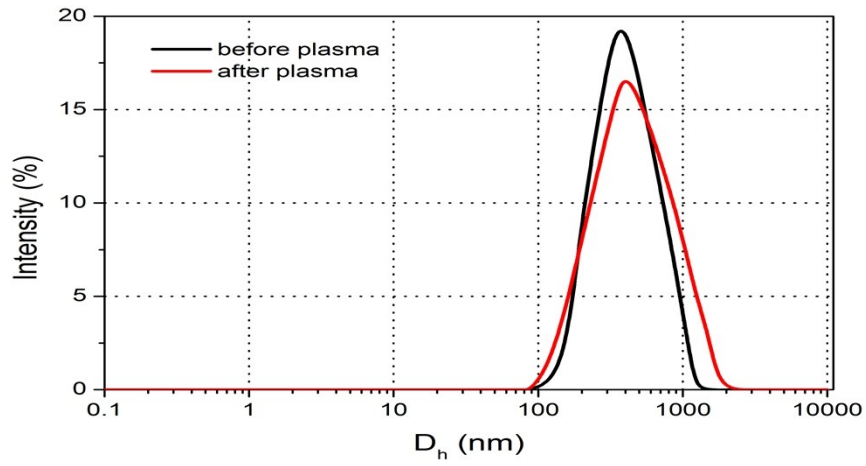


Fig. S5 Mean hydrodynamic diameter (D_h) changes of $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2$ microspheres before and after incubation with human blood plasma

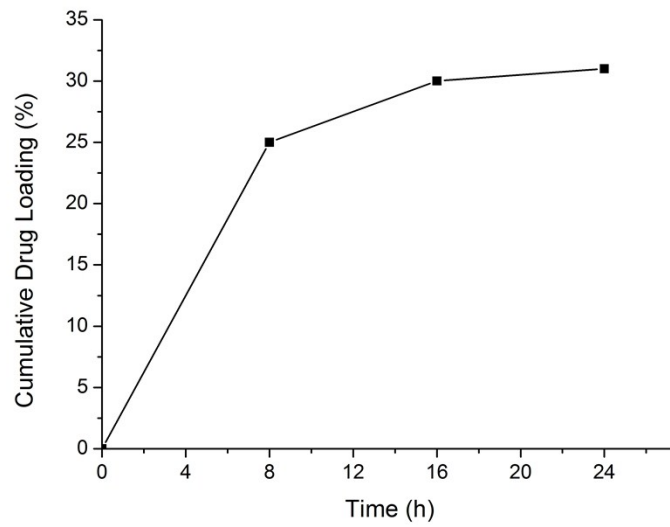


Fig. S6 Drug loading profile in mesoporous $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2$ microspheres

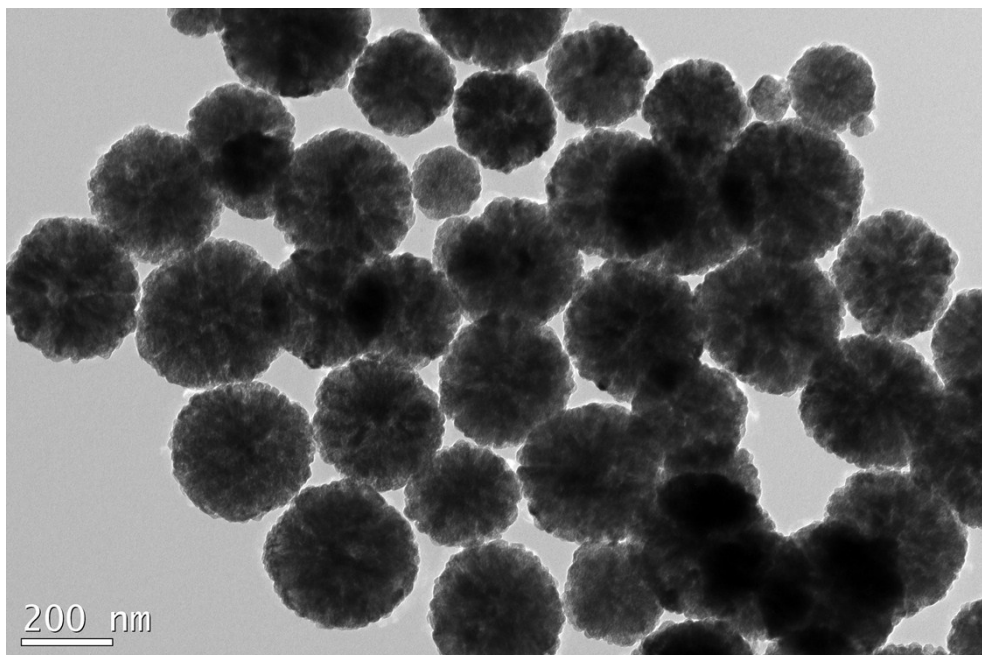


Fig. S7 TEM image of porous Fe₃O₄ microspheres

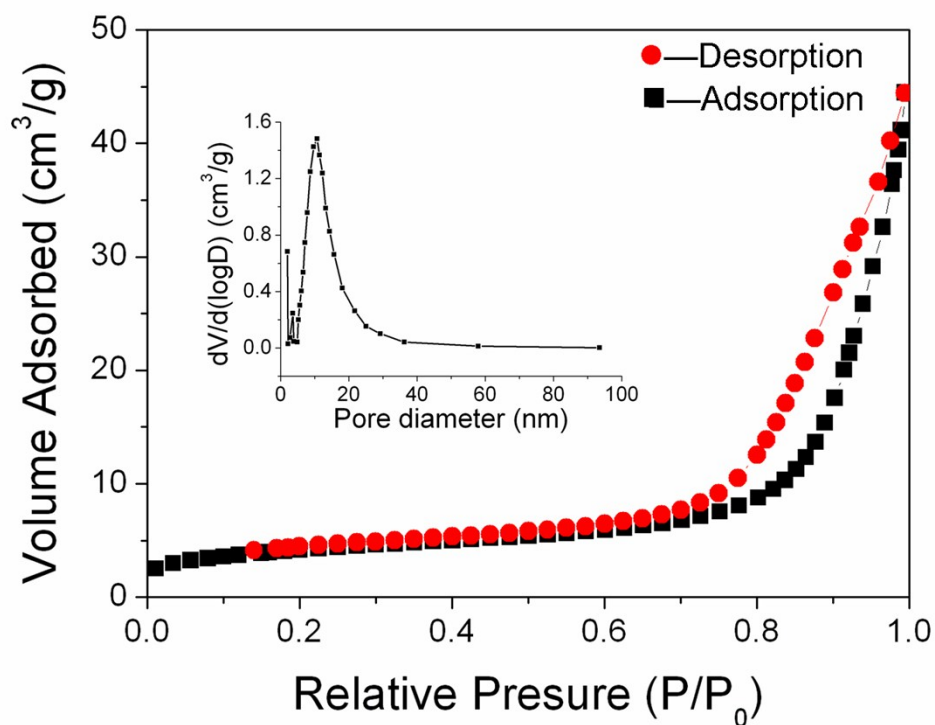


Fig. S8 N₂ adsorption-desorption isotherms and pore size distribution (the inset) of the synthesized porous

Fe_3O_4 microspheres. The BET surface area is $26.5 \text{ m}^2/\text{g}$.

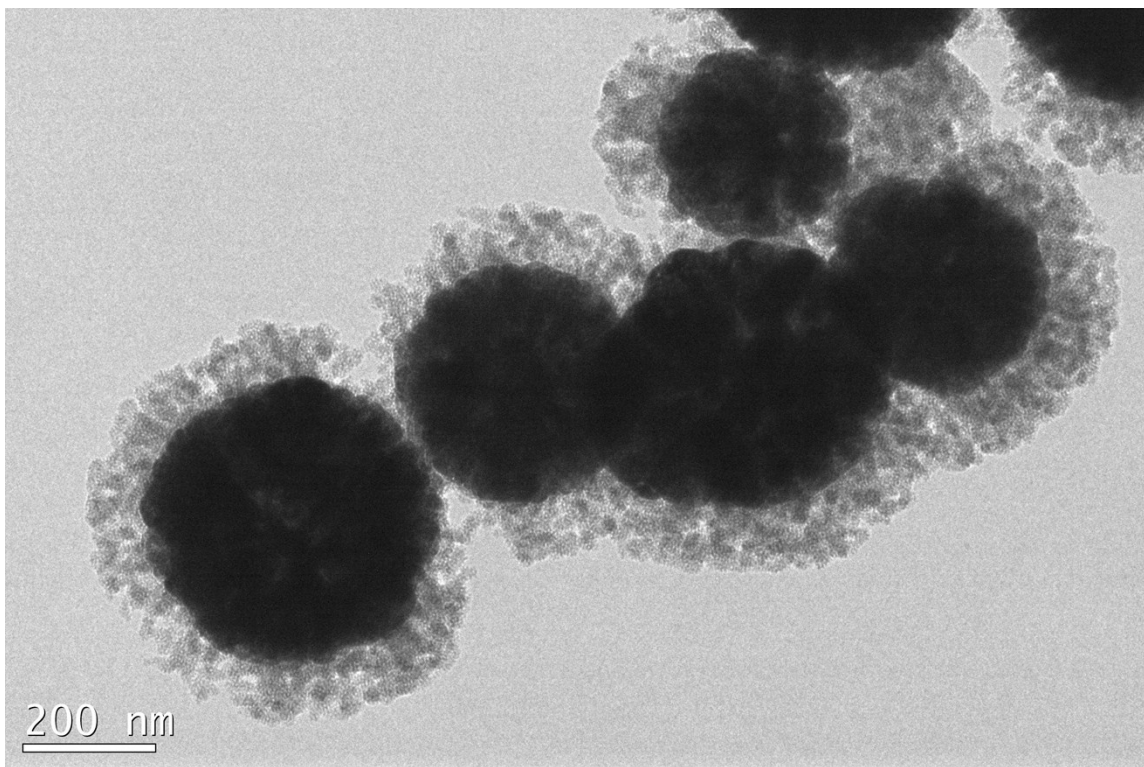


Fig. S9 TEM image of $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2$ microspheres after 3 h of hot water etching

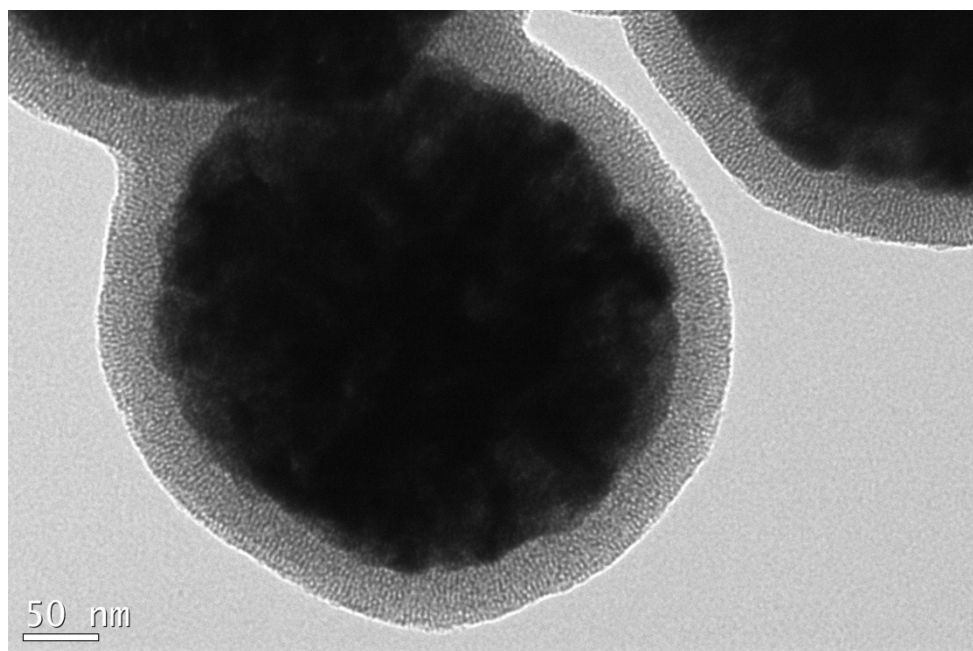


Fig. S10 TEM image of $m\text{-Fe}_3\text{O}_4@m\text{-SiO}_2$ microspheres prepared with CTAB templating and without PVP protecting. Only perpendicular aligned mesochannels can be observed in SiO_2 shells.

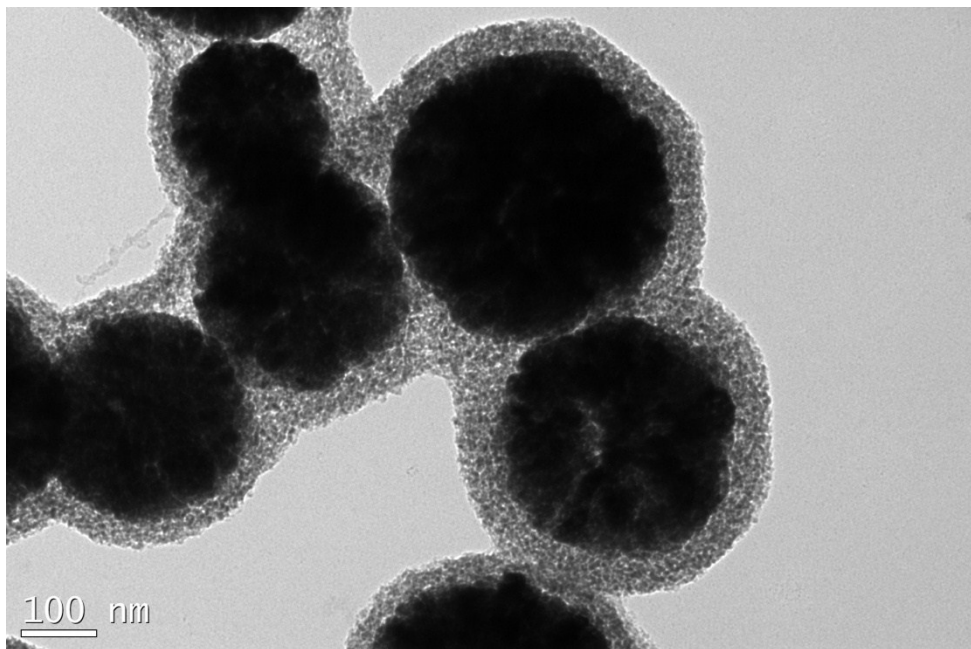


Fig. S11 TEM image of $m\text{-Fe}_3\text{O}_4@m\text{-SiO}_2$ microspheres prepared with PVP protecting and without CTAB templating. Only randomly distributed pores can be observed in SiO_2 shells.

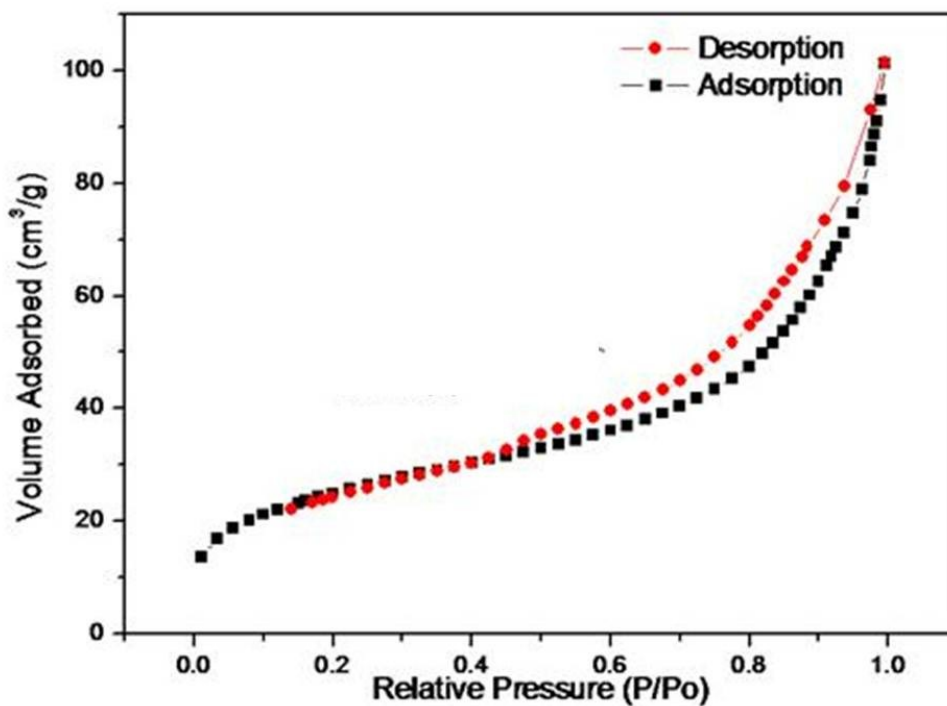


Fig. S12 N_2 adsorption-desorption isotherms of the $m\text{-Fe}_3\text{O}_4@m\text{-SiO}_2$ microspheres prepared with CTAB templating and without PVP protecting. The BET surface area is $304.5 \text{ m}^2/\text{g}$

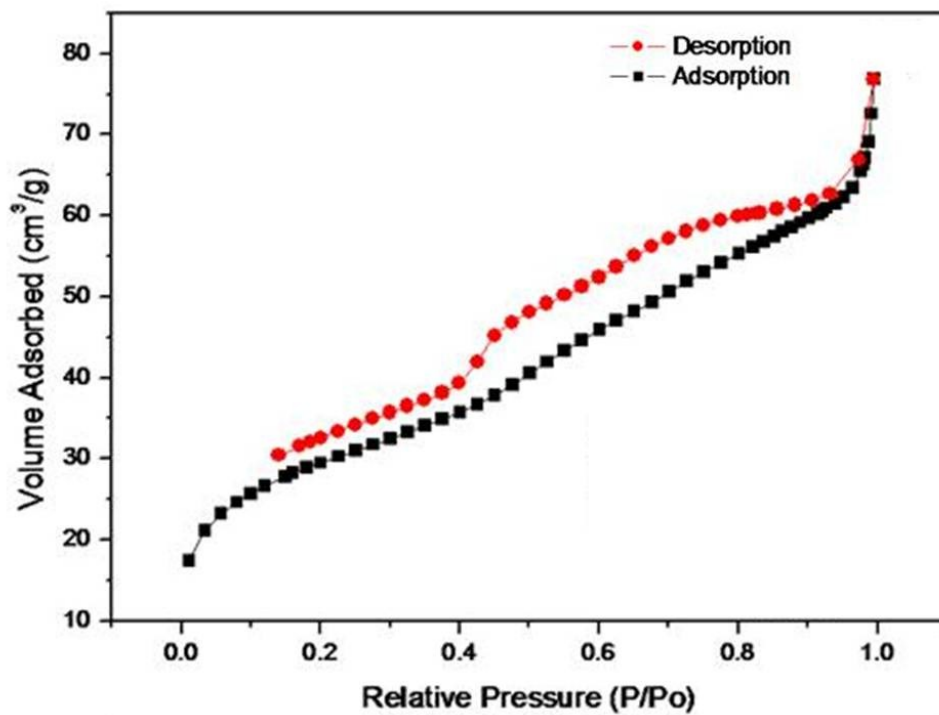


Fig. S13 N_2 adsorption-desorption isotherms of the $m\text{-Fe}_3\text{O}_4@m\text{-SiO}_2$ microspheres prepared with PVP protecting and without CTAB templating. The BET surface area is $86.9\text{ m}^2/\text{g}$.

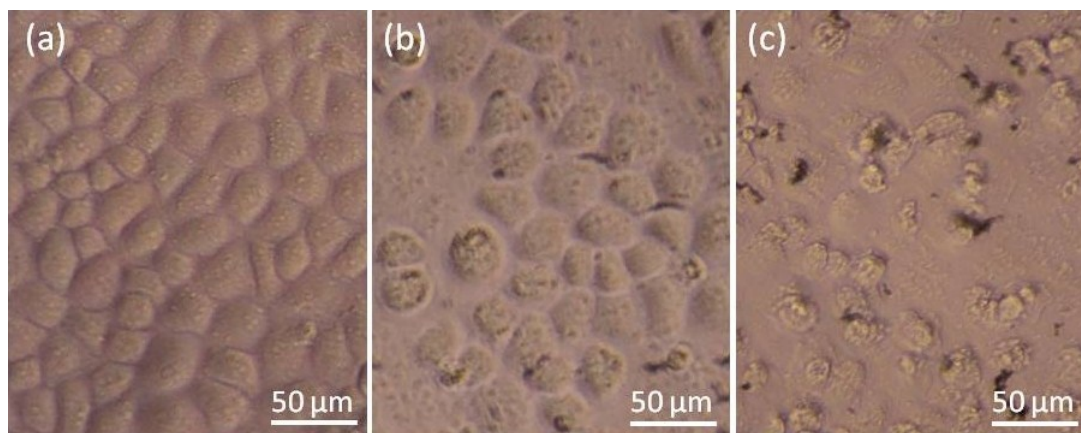


Fig. S14 Images of SGC-7901 cells after being cultured at different concentrations of $m\text{-Fe}_3\text{O}_4@dm\text{-SiO}_2/5\text{-FU}$ for 24 h: (a) $0\text{ }\mu\text{g/mL}$, (b) $32\text{ }\mu\text{g/mL}$, (c) $200\text{ }\mu\text{g/mL}$