Supplementary Material (ESI) for Journal of Materials Chemistry

Synthesis, characterization and functionalization of nearly mono-disperse copper ferrite $Cu_xFe_{3-x}O_4$ nanoparticles

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Supporting Information

Table S1: Refinement parameters

Measurement details		
Device	Bruker AXS D8Advance, Series I	
Radiation	MoKα	
Detector	SolX, adjusted to $MoK\alpha_1$ – $MoK\alpha_2$ duplet	
Sample preparation	Loose powder on Si single crystal	
Measurement range, step size, step time	$5 \leq 2\square\ /° \leq 40$, $\Delta_{2\square} = 0.025°$, $\Delta t = 10s$, 8 scans added in total	
Background	Chubychev, 11 parameters	
Program	Topas Academic V4.1	
Side Phases, content	Cu, 1.4(3)% wt., Cu_2O, 9.8(9)%wt.	
$CuFe_2O_4$		
Composition	$Cu_{0.32(22)}Fe_{2.68(22)}O_4$	
Space group, lattice parameter. Crystallite size	*Fd*-3*m*, 8.363(2) Å, CS = 7.6(1)nm	
x(O)	0.2378	
Occupation factor (16*c*)	Fe: 1.0(1),	Cu: 0.0(1)
Occupation factor (8*b*)	Fe: 0.68(9),	Cu: 0.32(9)
Residuals, goodness of fit	r_{wp} = 6.69,	gof = 2.27

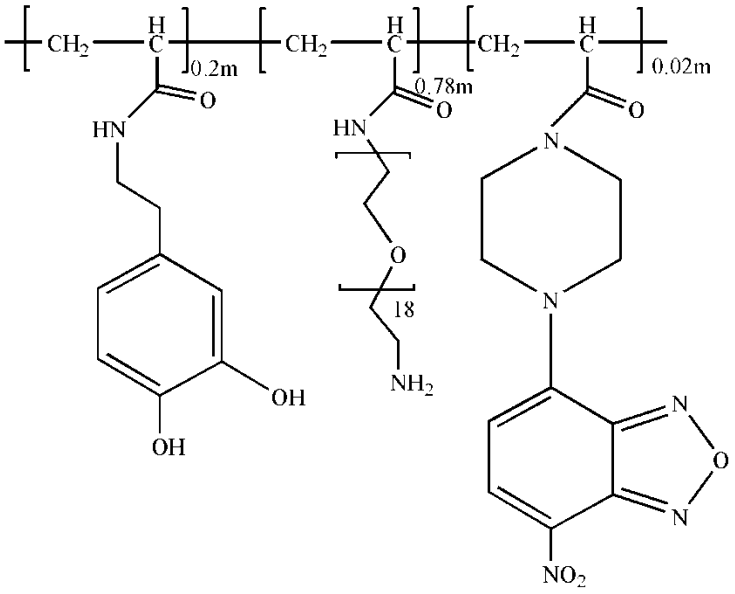

Fig. S1. Schematic representation of the multifunctional copolymer containing 3-hydroxytyramine (dopamine) as an anchor group for the binding of metal oxides, pip-NBD as a fluorophore and PEG chains containing an amine group to improve the solubility of functionalized nanoparticles.

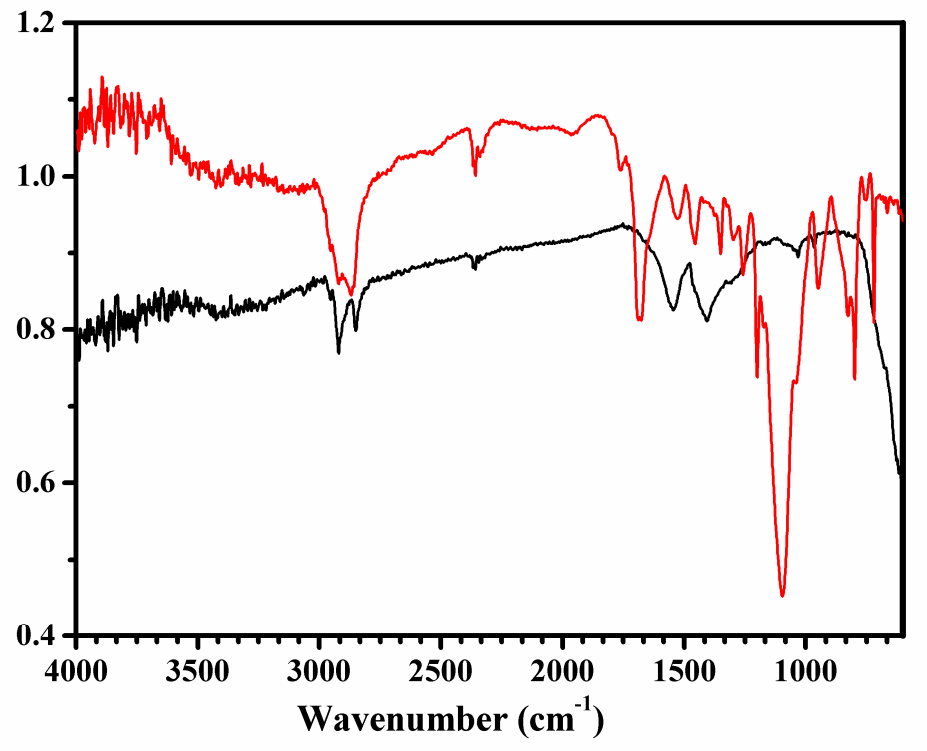

Fig. S2. FT-IR spectra of as-synthesized $Cu_xFe_{3-x}O_4$ nanoparticles (black line) and polymer functionalized nanoparticles (red line).