

SUPPORTING INFORMATION

Size-control synthesis of structure deficient truncated octahedral $\text{Fe}_{3-\delta}\text{O}_4$ nanoparticles: high magnetization magnetites as effective hepatic contrast agents

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Size (nm)	22	14	10	5
Phase I	Fe _{3-δ} O ₄	Fe _{3-δ} O ₄	Fe _{3-δ} O ₄	Fe _{3-δ} O ₄
Weight fraction, PI (%)	92.49	100	100	100
Space group	Fd-3m	Fd-3m	Fd-3m	Fd-3m
Unit cell dimension (Å)	8.38921(8)	8.38676(8)	8.3806(1)	8.3758(1)
Phase II	α-Fe			
Weight fraction, PII (%)	7.51			
Space group	Im-3m			
Unit cell dimension (Å)	2.8675(1)			
wRp, %	3.76	2.19	2.94	2.32
Rp, %	2.34	1.41	1.88	1.60
χ ²	0.835	0.428	0.817	0.858

Table S1. Physical properties and parameters of 5-22 nm Fe_{3-δ}O₄ nanoparticles

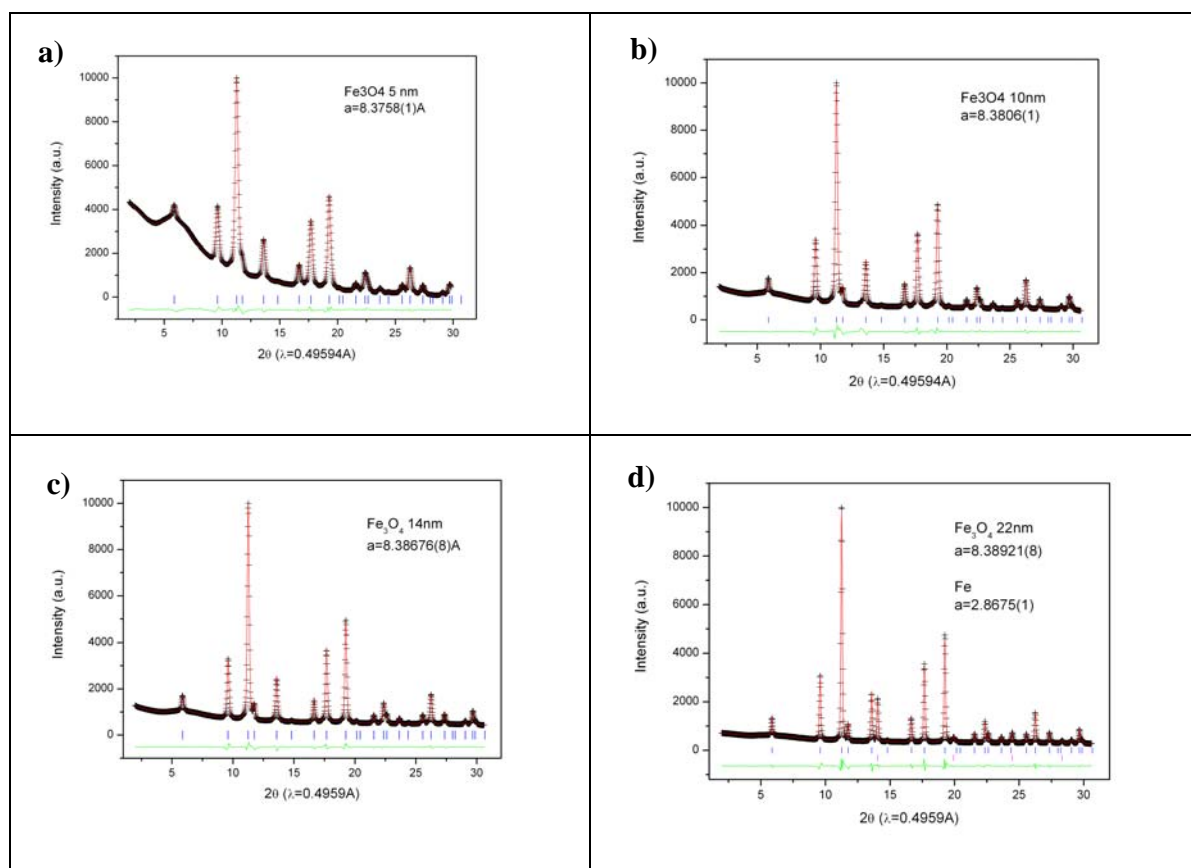


Figure S1. Rietveld refinements for (a) 5 nm, (b) 10 nm, (c) 14 nm, (d) 22 nm $\text{Fe}_{3-\delta}\text{O}_4$ nanoparticles

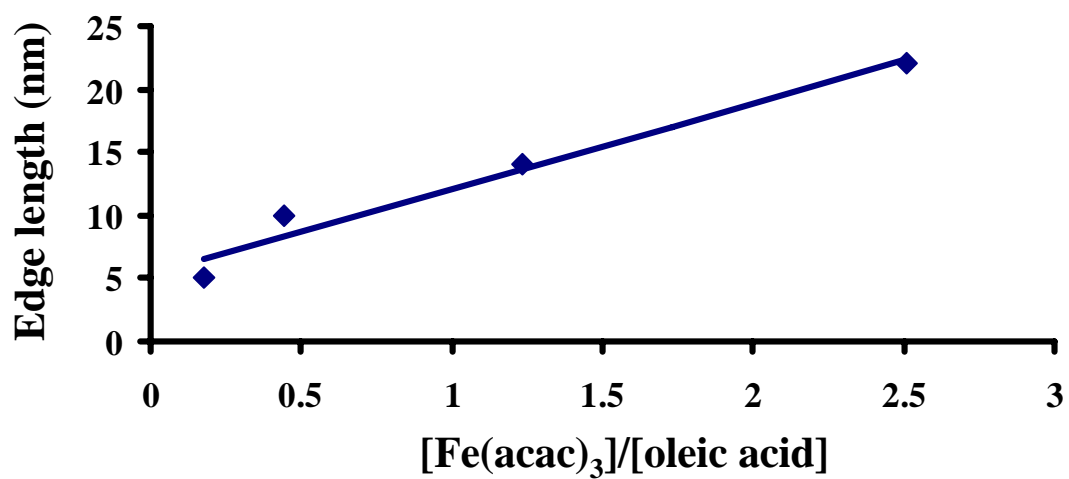


Figure S2. A plot of [Fe(acac)₃]/[oleic acid] versus magnetite nanoparticle in edge length (nm).

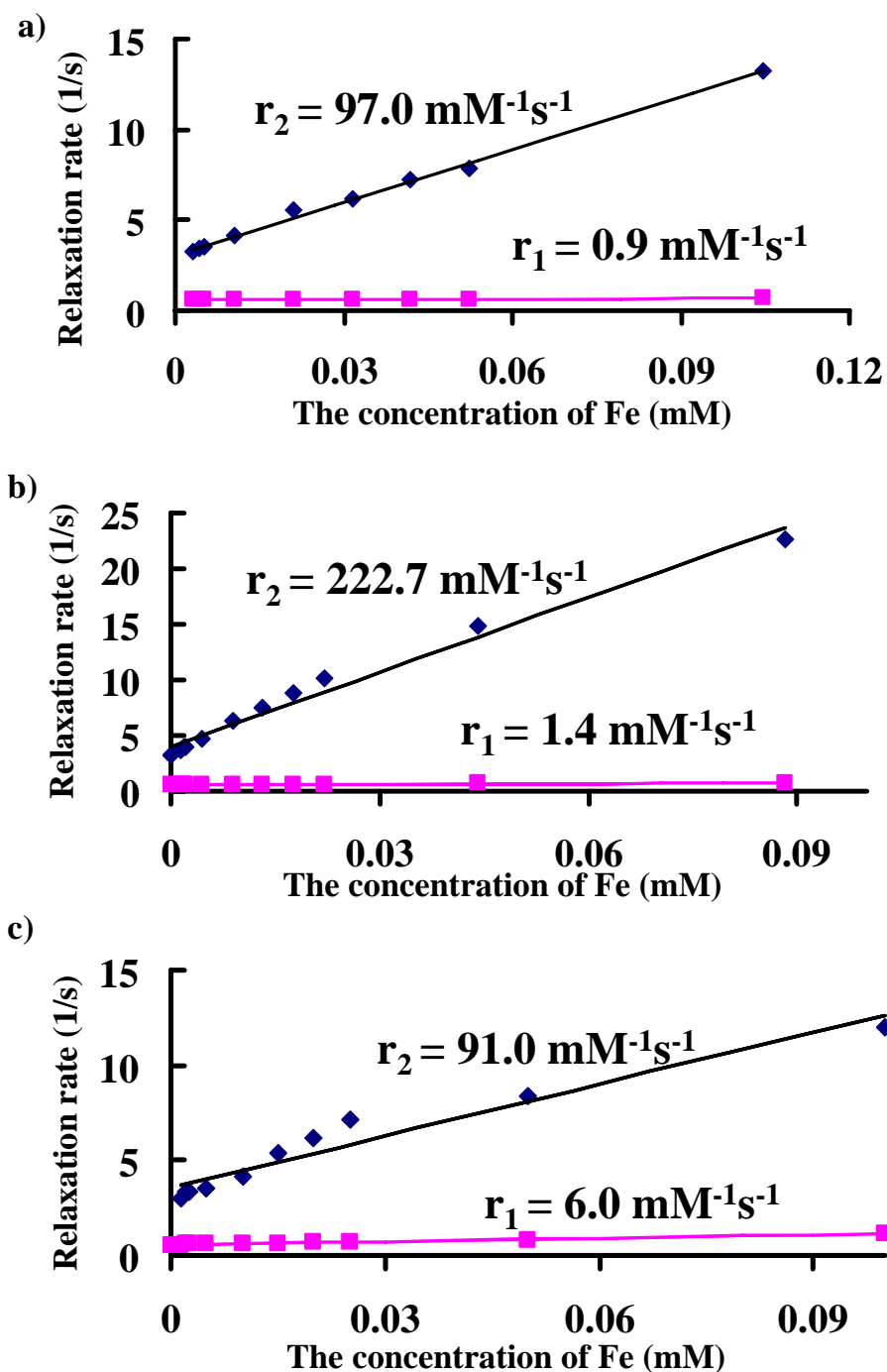


Figure S3. T₁ relaxation ($1/T_1, \text{s}^{-1}$) (pink) and T₂ relaxation ($1/T_2, \text{s}^{-1}$) (blue) rates of a) CTAB- and b) PSMA-coated magnetite nanoparticles, and c) commercial Resovist agent.

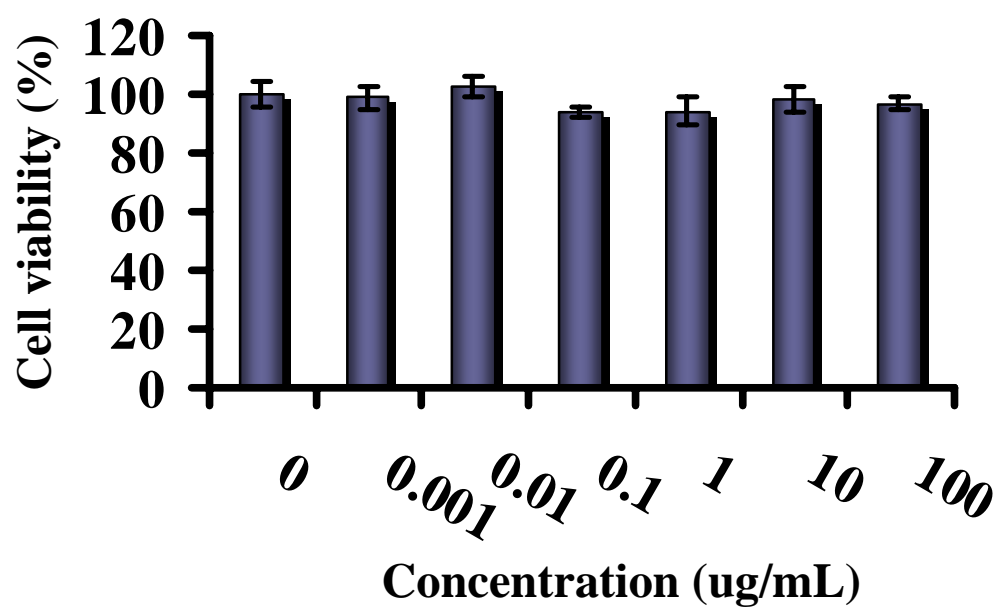


Figure S4. MTT assay of A549 cells cultured with PSMA-coated magnetite (22 nm) nanoparticles for 1 day.

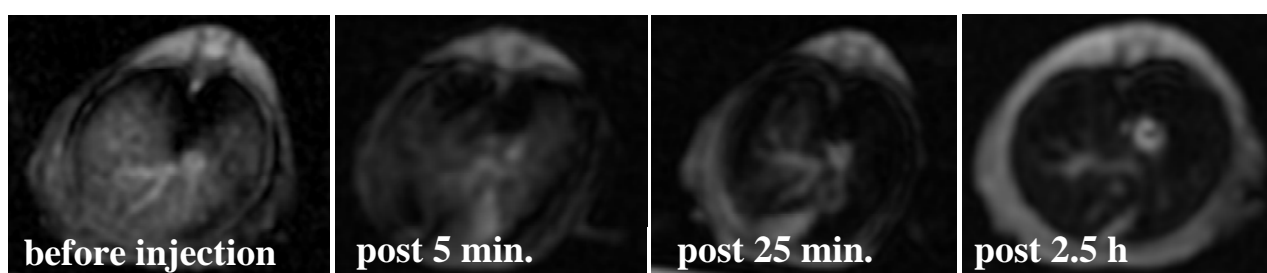


Figure S5. In vivo progressive T2*-weighted MR images of male BALB/c mice (axial view) at the temporal points (pre-injection, post-5 min., 25 min. and 2.5 h.): PSMA-coated magnetite nanoparticles.