

Supporting Information

Magnetic Gold Nanoshells: Step-wise Changing of Magnetism through Step-wise Biofunctionalization

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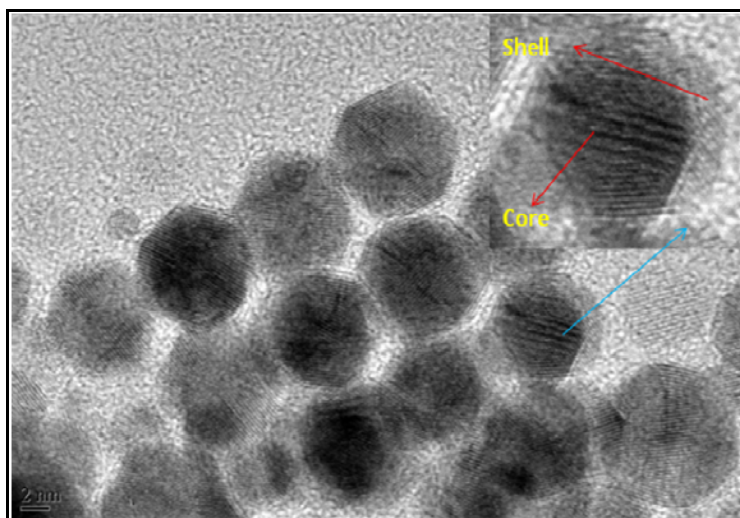


Figure S1. HRTEM image of SPIONs@Au nanoparticles (inset showing the core and shell).

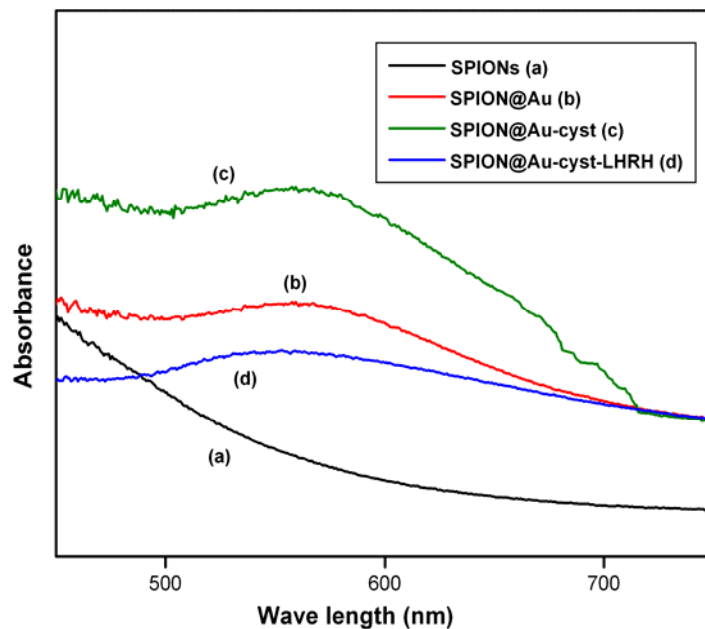


Figure S2. Comparative UV-Visible spectra of SPIONs (a), SPIONs@Au (b) in toluene and SPIONs@Au-Cysteamine (c), SPIONs@Au-Cysteamine-LHRH (d) in water. A clear shift in the SPR band is seen on step-wise biofunctionalization.

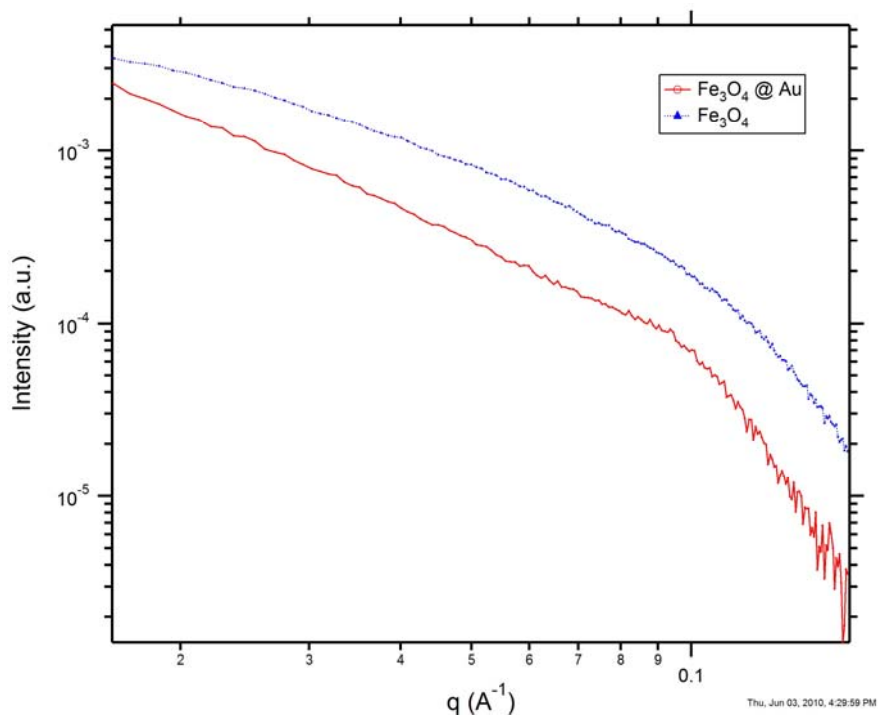


Figure S3: SAXS for SPIONs and SPIONs@Au.

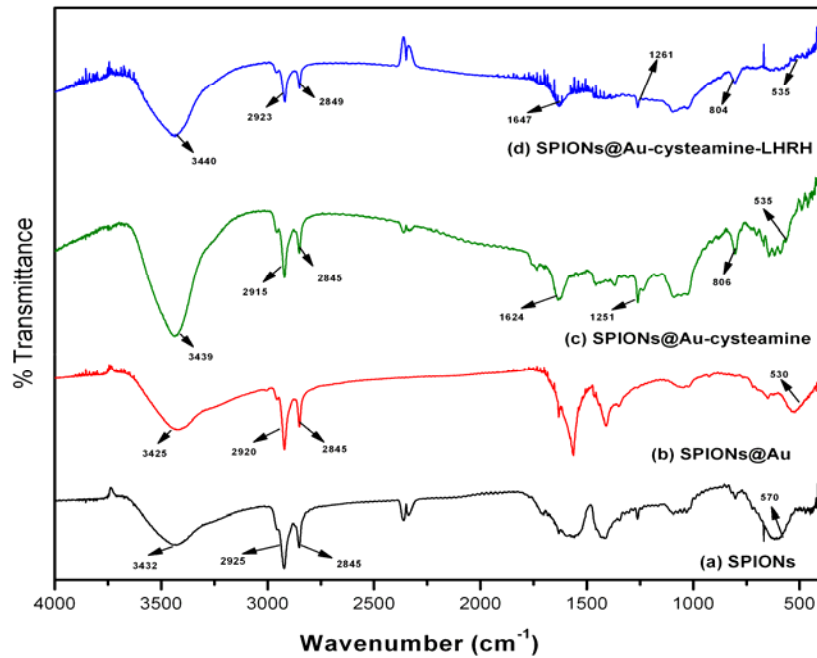


Figure S4. Comparison of FT-IR spectra of SPIONs (a), SPIONs@Au (b), SPIONs@Au-Cysteamine (c) and SPIONs@Au-Cysteamine-LHRH (d).

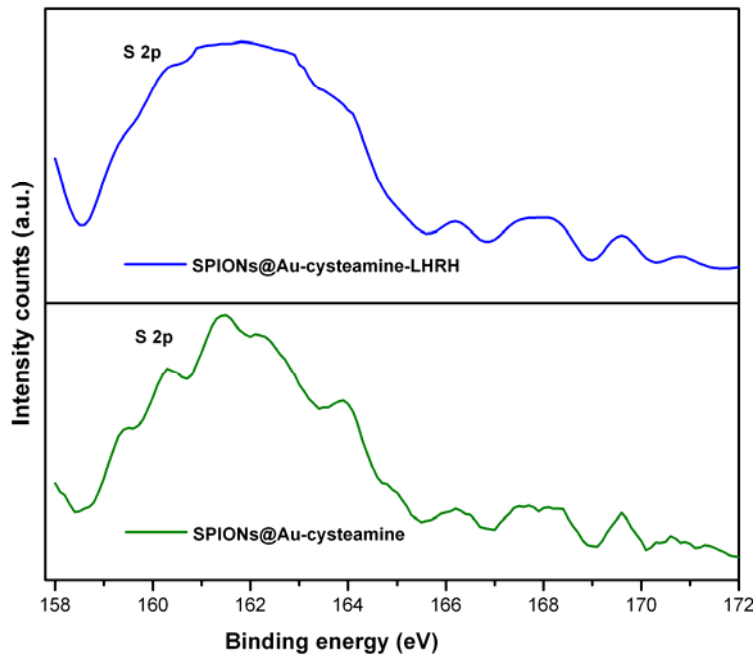


Figure S5. Comparison of XPS (Sulphur 2p) peaks for SPIONs@Au-Cysteamine and SPIONs@Au-Cysteamine-LHRH. The max intensity observed for S 2p peaks are 161.5 eV for cysteamine bound SPIONs@Au and 161.8 eV for SPIONs@Au-Cysteamine-LHRH.

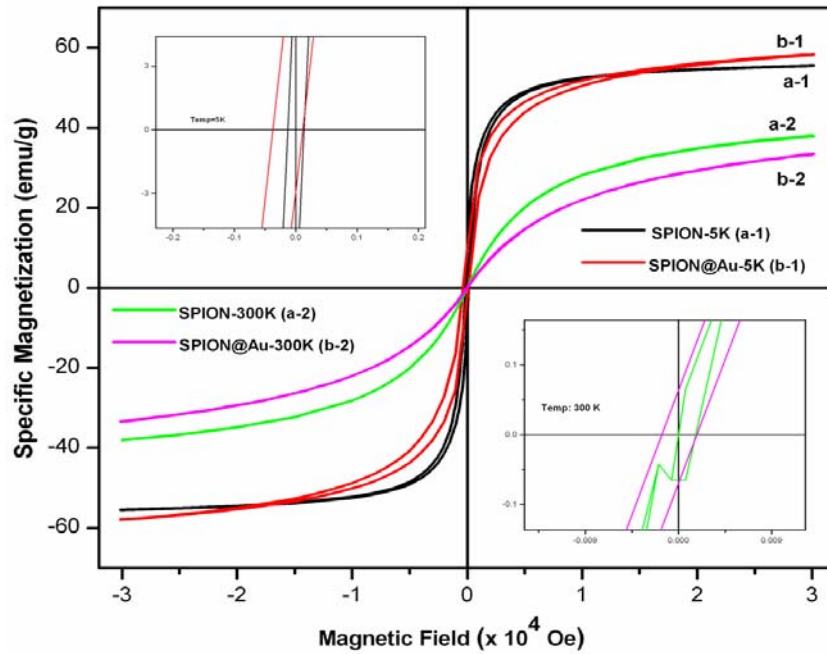


Figure S6. Hysteresis curves for SPIONs (a) and SPIONs@Au (b) at 5 k and 300 K.

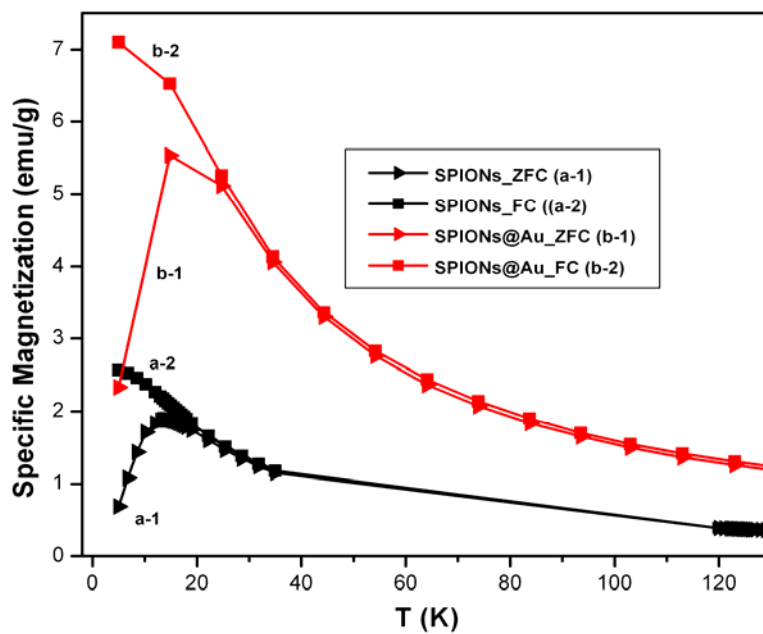


Figure S7. Temperature dependent magnetization: FC and ZFC curves for SPIONs (a) and SPIONs@Au (b).

	SPIONs	SPIONs@Au	SPIONs@Au-Cysteamine	SPIONs@Au-Cysteamine-LHRH
M_s @ 5K (emu/g)	55.4	58	84.5	37.7
M_s@300K (emu/g)	38	33.2	72.7	32.1
H_C @ 5K (Oe)	133	115	334	325
M_R @5K (emu/g)	4.8	8.6	21.3	9.6
H_C @ 300K (Oe)	0	0	0	32
M_R @ 300K (emu/g)	0	0	0	0.4
T_B (K)	19.1	44.3	201.5	>300

Table S1. Magnetic data for SPIONs, SPIONs@Au, SPIONs@Au-Cysteamine and SPIONs@Au-Cysteamine-LHRH