

Water-soluble polymer coated Fe₃O₄ nanoparticles

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The biocompatible and water dispersible poly(amino acid) derivative, PHEA-C₁₈-C₈COOH, was employed to alter the surface property of hydrophobic iron oxide nanoparticles that exhibit high saturation magnetization. The different size Fe₃O₄ nanoparticles (4-10 nm) protected by hydrophobic ligands were chemically conjugated onto the hydrophilic poly(amino acid)s through a ligand-exchange reaction. The hydrophilic poly(amino acid)s conjugated Fe₃O₄ nanoparticles form small spherical self-aggregates with a core-shell morphology in aqueous solutions.