

Iron oxide nanoparticles conjugated with polyaspartamide derivatives for immune cell tracking

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Iron oxide nanoparticle is one of the magnetic resonance imaging (MRI) contrast agents widely used. In this study, iron oxide nanoparticles (IONPs) were synthesized by thermal decomposition method and it was coated with biocompatible polymer. Uncoated IONPs were hydrophobic but after coating it was dispersed well in water. PHEA-g-C18 was used as polymer for coating and it was synthesized by the aminolysis of PSI-g-C18. In addition, maleimide group was introduced to PSI to combine with T-cell. The chemical structure of synthesized polymer and IONPs were analyzed by FT-IR and NMR spectroscopy. IONPs and coated IONPs size was confirmed using transmission electron microscopy (TEM) and dynamic light scattering (DLS).