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Super Paramagnetic Iron Oxide Nanoparticles

Abstract

This work plans to design and synthesize a Super Paramagnetic Iron Oxide Nanoparticle (SPIONS) as a carrier to deliver photothermal agents to the area of interest via a magnetic field. I take into account a number of problems that could present themselves during the synthesis of the compound I wish to develop, such as size limitations crossing the blood brain barrier, particle aggregation, surface chemistry and other physicochemical properties that eventually dictate the nature of the product. The goal is to eventually create a biocompatible agent that can detect tumors and other cellular abnormalities more efficiently and with less harmful side effects to the patient.