

## Controlled Synthesis of Porous/Hollow Magnetite Particles and their Application as Potential Therapeutic Agents

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Monodisperse magnetite hollow particles have been emerged as an ideal candidate for biomedical applications. Porous/hollow nanostructures possess valuable characteristics such as low density, high surface-to-volume ratio and, specially, high capacity for encapsulating various moieties such as drugs, proteins, and genetic materials. One of the methods to prepare the hollow interior structure without using any template has been developed based on the oriented attachment of primary particles and subsequent local Ostwald ripening approach. In this study, we synthesized controllably magnetite nanoparticles with porous/hollow structure, exhibiting a high magnetization saturation, large surface area, excellent stability and biocompatibility by utilizing the Oswald ripening process. We also investigated their applicability as drug delivery vehicles to demonstrate the potential of these nanostructures as therapeutic agents.