

676 - Synthesis, characterization, and in vitro toxicity of paramagnetic Au nanorods

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Coated Au nanorods are widely known for their absorption in the near infrared¹, making them excellent candidates for near infrared imaging and photo thermal therapy². Furthermore, recent studies have shown that these nanomaterials are excellent candidates for Magnetic Resonance Imaging (MRI) since they can be used as T₁ contrast agents when functionalized with Gd³⁺-containing moieties and as multimodal agents for MR-CT³ and MR-plasmonic⁴ imaging. In this context, our aim is to explore the possible incorporation of Gd³⁺ complexes to these nanosystems in order to use them as T₁ contrast agents for MRI and, in a more advanced stage, as multimodal imaging agents. Here we describe the synthesis, characterization, properties and *in vitro* toxicity of paramagnetic nanorods coated, in one step, with combinations of thiol functionalized Gd³⁺ complexes of a 1,4,7,10-tetraazacyclododecane-1,4,7-tris(acetic acid) (DO3A)-based ligand and polyethylene glycol (PEG). Preliminary results show that these paramagnetic Au nanorods are biocompatible, show T₁ contrast at low Gd³⁺ concentrations and are envisioned to become excellent candidates for multimodal purposes.

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Thursday, March 29, 2012 10:50 AM

[Basic Research in Colloids, Surfactants and Nanomaterials \(08:30 AM - 11:30 AM\)](#)

Location: San Diego Convention Center

Room: Room 3