

Synthesis of magnetic fluids for biomedical application and their biocompatibility investigation

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Novel properties of nanoparticles arise from the large fraction of atoms, which reside on the surface of the particles and from the finite number of atoms in core. Nanocrystals can be synthesized in a number of different ways [1], including grinding, electrodeposition, sputtering, metal evaporation, solution phase metal salt reduction, and neutral organometallic precursor decomposition. Two of the most common procedures for high quality nanoparticles are the thermal decomposition of a precursor molecule in the presence of coordinating solvent and a capping ligand [2].

Smart application of nanomagnetic particles in biotechnology includes diagnosis and therapy as carrier to tumors. The application of magnetic particles for biological parts requires the biological experiments such as in vivo or in vitro certainly.

In this work, the magnetic fluids with iron oxide that had the spherical shape with uniform size were prepared, and the biocompatibilities of them were investigated by using S. D. rat. Also, the surface of magnetic iron oxide was radioisotope labeled, and the discharging routes of them were then tracked in a rat.

[1] Gomez, M. M., Lu, J., Solis, Phys. Chem. B 104 (2000) 8712.

[2] Tang, Z. X., Sorensen, C. M., J. Colloid Interface Sci. 146 (1991) 38.