# Magnetic sensitivity enhanced novel fluorescent magnetic silica nanoparticles for biomedical applications

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We synthesized novel fluorescent magnetic silica nanoparticles (FMSNPs) containing large magnetic components for biomedical application. By employing assemblies of magnetic nanoparticles as kernels against FMSNPs, both the saturation of magnetization and the magnetic resonance (MR) signal intensity were significantly enhanced. Furthermore, the cellular binding of FMSNPs was improved by introducing a positive charge on the surface of the FMSNPs, and fluorescent dyes on the surface of FMSNPs enable optical imaging of sub-cellular regions.