

Synthesis of Multifunctional Gold-Silica Nanoparticle with Reduced Symmetry

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Metallic nanostructures for biomedical application require plasmonic property in NIR region and biocompatibility. For that, noble metallic nanoparticles with reduced-symmetry such as gold nanorod have been widely investigated. Especially, symmetry-broken nanoparticle with sharp edges is a good candidate since it could improve the plasmonic property. Herein we propose a facile synthesis of crescent-like gold/silica nanoparticle by using 100nm gold/silica dimer as a seed. By taking advantages of biocompatibility and room temperature synthesis, we use silica part as a physical barrier. We expect our particle can be used in a wide range of biophonic applications for optical nanoplasmonics such as targeting, sensing/imaging, gene delivery, and optical gene regulations.