

Enzymatic Controlled Assembling of 1-D Gold Nanoparticle on Biopolymeric Templates for Tunable Surface Plasmon Resonance

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Gold nanoparticles are one of most adapted metallic nanoparticles in optical, electrical and biological applications. Among the attracting properties such as feasibility in size controllable synthesis and bioconjugation, chemical stability and biocompatibility, the unique optical characteristic, called surface plasmon resonance (SPR) has been extensively addressed or utilized. Spectra of SPR of gold nanoparticles are highly dependent on structures and size of the particles. Since different spectrum of SPR is required for the each application, a novel method to control SPR of gold nanoparticles is demanded. Therefore, herein we present our new approach to prepare 1-D array of gold nanoparticles. Positively charged spherical gold nanoparticles were assembled on a biological template with negatively charged moieties. We could obtain finely tunable SPR peaks from the assembled golds on hyaluronic acid by enzymatic controlling size of the templates.