Serotonin analysis by using chitosan gold nanoshell

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Serotonin, biochemically derived from tryptophan, is primarily found in the gastrointestinal tract, blood platelets, and the central nervous system of animals. As an inhibitory neurotransmitter, serotonin is an alkaloids which is essential for the human body and the lack can lead to quite a lot of diseases. Chitosana, linear polymer , has the advantage with nontoxic, bio-compatibility, bio-degradable, non-immunogenic, antibacterial, ect. The modified chitosan by using Schiff base reaction can change the amine group into aldehyde group, which enhances the reaction ability with the drug. The chitosan gold nanoparticles which has the merits with chemical stability and non-toxicity, can be used in drug delivery system. Serotonin which is a monoamine neurotransmitter, can easily combined with modified chitosan nanoparticles, via Schiff base, oxidation, reduction reaction.
In this study, two kinds of materials examined potential as bio-sensor about serotonin. Chtitosan-gold nano shell checked change from the raman scattering in 1~10mM of serotonin-concentration, then made chitosan-gold nano shell were analyze using DLS, ELS, SEM, UV-vis etc.