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Study of the Agglomeration of 5 to 25nm Gold Nanoparticles as a Function of Viscosity and Ionic Concentration ADAM STEFANKIEWICZ, TABBETHA DOBBINS, Rowan University — Gold nanoparticles (AuNPs) attached to carcinoma cells and treated with light irradiation are able to convert the light into heat energy, thus killing those cells. In order to get the particles to the affected area, they may be entered into the circulatory system where the environment is highly viscous and comprised of high salt concentrations. This study examines the aggregation behavior of gold nanoparticles under those conditions. Surface charge creates coulombic repulsion between particles. Likewise, highly viscous solutions will prevent aggregation by limiting the rate of transport of gold through the solution. This study examines the aggregation behavior of gold nanopartilces as a function of viscosity (varied using polyethylene glycol). The study also examines the role of excess ions in the solution (varied using 5-Bromo-4-chloro-3-indolyl phosphate disodium salt). The aggregation phenomena was explored using dynamic light scattering for particle size analysis. Early results are presented here.

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