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Photothermal laser treatment of gold nanoparticle infused HCC 1395 cell line MADELINE CARTER, EDISON KNEELAND, SOPHIA GOMEZ, ALISON TRAN, MICHELLE STEIGER, BIRGIT MELLIS, University of St. Thomas — Our research focuses on exposing the HCC 1395 cell line, derived from breast cancer cells, with gold nanoparticles that undergo photothermal treatment near the peak surface plasmon resonance (SPR) at 532nm. For this treatment we synthesize monodispersed, fluorescent gold nanoparticles with gallic acid based ligand shells at an average size of 1- 2nm at two different concentrations. We confirm the SPR peak with UV-Vis, and nanoparticle size and monodispersity via dynamic light scattering. Photothermal treatments are run with a MGL III 532-300mW laser. Measurements are taken to observe when temperature equilibrium has reached in a drop of solution. During photothermal treatment of cells, the laser excites the gold nanoparticles at the SPR, resulting in a locally raised temperature. After treatment, cells are incubated and analyzed for cell viability with crystal violet staining. We present results on how infusion with gold nanoparticles and photothermal treatment affect the cell viability.

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