

Sharanya Bhaskaran, Biochemistry

Year in School: Sophomore
Faculty Mentor: Dr. Kattesh V. Katti, Radiology
Funding Source: National Institute of Health Molecular Imaging Program

Design and synthesis of biocompatible gold nanoparticles

The design and development of nanoparticles is emerging as one of the most promising areas of science in the 21st century. Among the different types of metallic nanoparticles in present use, gold nanoparticles are intensely studied for biological purposes. This is primarily due to the fact that gold is capable of sustaining in the reduced form at the nanoscale while the other metals are usually oxidized. The use of hybrid gold nanoparticles, gold nanoparticles attached to tumor loving biomolecules, in cancer imaging and therapy is an exciting prospect because of the high target specificity of certain biomolecules toward cancer cells combined with the unique optical and radiochemical properties of gold nanoparticles. The conjugation of gold nanoparticles to the biomolecules is possible only if the nanoparticles are stable. The stability of gold nanoparticles can be achieved through the use of stabilizers such as Gelatin. Gelatin has a long history of safe use in pharmaceutical products and is considered “generally as safe” material by the Food and Drug Administration (FDA). This presentation will include an overview of our recent research results on new synthetic strategies, photo physical properties, and size determination of Gelatin stabilized gold nanoparticles.