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## **Size-controlled synthesis and characterization of protein protected palladium nanoparticle**

Nanoparticles of precious metals (Gold, Silver, Palladium and Platinum) are at the current focus of nanoscience and nanotechnology. Recent research interests are aimed on developing new strategies for the production of biomolecule coated Palladium nanoparticles because of their applications in the fields of catalysis and medicine. Existing methodology for the production of Palladium nanoparticles utilizes harmful chemicals such as Sodium borohydride and thiol stabilizers. Thiol stabilized nanoparticles have limited applications in catalysis and medicine. In this current research project, we have developed a novel, biofriendly, synthetic strategy for the production and stabilization of palladium nanoparticles in glycoprotein matrix. This new technology utilizes trimeric amino acid conjugate (MUNANO) that can be produced in large scales using industrially produced chemicals. The palladium nanoparticles stabilized within glycoprotein matrix are produced within 5 minutes by mixing of MUNANO with  $\text{Na}_2\text{PdCl}_4$  at 25 °C. Details of our results on the development of uniform sized palladium (7-10 nm) nanoparticles, their stabilization in aqueous media and characterization using electron microscopic methods will be presented. This abstract will also discuss how the current discovery can be extended for the production of radioactive palladium nanoparticles at the Missouri University Research Reactor (MURR) for potential use in cancer therapy.