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Editorial

Polymorphism in Nano-Sized Graphene Ligand-Induced Transformation of Au_{38}-xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ to Au_{36}-xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ (x=1-12) Nanomolecules for Synthesis of Au_{144}-xAg_x/$xCu_x[(SR)_{60}$, $(SC_4)_{60}$, $(SC_6)_{60}$, $(SC_{12})_{60}$, $(PET)_{60}$, (*p*-MBA)$_{60}$, $(F)_{60}$, $(Cl)_{60}$, $(Br)_{60}$, $(I)_{60}$, $(At)_{60}$, $(Uus)_{60}$ and $(SC_6H_{13})_{60}]$ Nano Clusters as Anti-Cancer Nano Drugs

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Editorial

Polymorphism of Nano-sized graphene ligands has been previously achieved by functionalizing the Nano-sized graphene ligands with various organic functional groups [1-5]. The grafting of anti-cancer Nano drugs having amine and alcohol moieties to the Nano-sized graphene ligands were attained by initially produced acyl chloride at carboxylic groups' sites in Nano-sized graphene ligands which subsequently mixed with chemotherapeutic agents to afford the relevant amide and ester, respectively. In medicinal and pharmaceutical aspects of this editorial, it can be considered as new method for potential anti-cancer Nano drugs delivery by preparing several pastes that can be laid on the skin like a label and also through polymorphism in Nano-sized graphene ligand-induced transformation of Au_{38}-xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ to Au_{36}-xAg_x/$xCu_x(SPh–tBu)_{24}$ (x=1-12) nanomolecules for synthesis of Au_{144}-xAg_x/$xCu_x[(SR)_{60}$, $(SC_4)_{60}$, $(SC_6)_{60}$, $(SC_{12})_{60}$, $(PET)_{60}$, (*p*-MBA)$_{60}$, $(F)_{60}$, $(Cl)_{60}$, $(Br)_{60}$, $(I)_{60}$, $(At)_{60}$, $(Uus)_{60}$ and $(SC_6H_{13})_{60}]$ Nano clusters as anti-cancer Nano drugs. Hydrolysis reaction can be achieved according to the skin's pH and anti-cancer Nano drugs can be absorbed through the skin, along times when the paste is attached on skin. This process; therefore, makes it easier for anti-cancer Nano drugs administering of patients to get their medications through long periods. The problem usually associated with oral and injection of anti–cancer Nano drugs can be resolved using this method.

Our main objective is to develop strategies to exploit the photo-, electro-, and thermal-chemical reactions of these systems to severe as probes to aid in our basic understanding of the mechanistic factors that control molecular interactions and organic reactions at organized monolayer interfaces. Also, the development of new and selective ways of adding or removing functionality to these monolayers is another part of our ongoing efforts. In the present editorial, we have synthesized Au_{144}-xAg_x/$xCu_x[(SR)_{60}$, $(SC_4)_{60}$, $(SC_6)_{60}$, $(SC_{12})_{60}$, $(PET)_{60}$, (*p*-MBA)$_{60}$, $(F)_{60}$, $(Cl)_{60}$, $(Br)_{60}$, $(I)_{60}$, $(At)_{60}$, $(Uus)_{60}$ and $(SC_6H_{13})_{60}]$ Nano clusters as anti-cancer Nano drugs and incorporated them onto the surface of gold nanoparticles through the place-exchange reaction. Then, the interfacial reactions of the anchored aldehyde terminus with various nucleophiles have been investigated in some details. Our preliminary results reveal an easy reaction of aldehyde terminus of the organic modified gold nanoparticle with the nucleophiles like aniline, leading to a covalent attachment of the nucleophilic species to the nanoparticle surface.

However, cancer remains one of the most important diseases of human with over half of the world population at risk of infection. It affects mainly those living in tropical and subtropical areas with an incidence of 500 million cases per year globally. Every year 300-500 million people suffer from acute cancer and 0.5-2.5 million die from this disease. Over the years polymorphism in Nano-sized graphene ligand-induced transformation of Au_{38}-xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ to Au_{36}-xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ (x=1-12) nanomolecules has remained the anti–cancer Nano drugs of choice for cancer enzymotherapy, immunotherapy, chemotherapy, radiotherapy, hormone therapy and targeted therapy because of its low toxicity and cheapness. In continuation of our recent interests in the synthesis and chemistry of Nano-sized graphene ligands, synthesis of Au_{144}-xAg_x/$xCu_x[(SR)_{60}$, $(SC_4)_{60}$, $(SC_6)_{60}$, $(SC_{12})_{60}$, $(PET)_{60}$, (*p*-MBA)$_{60}$, $(F)_{60}$, $(Cl)_{60}$, $(Br)_{60}$, $(I)_{60}$, $(At)_{60}$, $(Uus)_{60}$ and $(SC_6H_{13})_{60}]$ Nano clusters as anti–cancer Nano agents was studied. In this approach, polymorphism in Nano-sized graphene ligand–induced transformation of $Au_{38\text{-}}$ xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ to Au_{36}-xAg_x/$xCu_x(SPh\text{-}tBu)_{24}$ (x=1-12) nanomolecules and followed by synthesis of Au_{144}-xAg_x/$xCu_x[(SR)_{60}$, $(SC_4)_{60}$, $(SC_6)_{60}$, $(SC_{12})_{60}$, $(PET)_{60}$, (*p*-MBA)$_{60}$, $(F)_{60}$, $(Cl)_{60}$, $(Br)_{60}$, $(I)_{60}$, $(At)_{60}$, $(Uus)_{60}$ and $(SC_6H_{13})_{60}]$ Nano clusters as anti-cancer Nano drugs through cyclization reaction.

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