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Futuristic Applications of Gold Nanoparticles

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Nanoparticles have several biomedical and industrial applications in diagnosis of disease, targeted chemotherapy and in drug delivery. Multifunctionality and sub-micronic size is the main characteristics of nanoparticles. Nanoparticles can be integrated with ligands, imaging labels, therapeutic agents and other functionalities for site specific drug delivery and cellular uptake. In the present review we are discussing the application and synthesis of gold nanoparticles which is the most studied among all metallo-nanoparticles. Various anticancer drugs are available but these are cause the necrosis of cancerous cell as well as normal cells. But gold nanoparticles cause the necrosis of only cancer cells. These are targeted drug delivery systems which are smaller than human cells so can easily penetrate the tumour and destroy the cancerous cell. Various anticancer drugs conjugated with gold nanoparticles result in increased efficiency of anticancer drug. Gold nanoparticles are beneficial for chemotherapy and also for diagnosis of cancer due to their photo physical property and optical property. Gold nanoparticles can be functionalized with peptides and nucleic acid. So these have a great application not only in bio sensing drugs but also in drug, gene and protein delivery.