

GOLD NANOPARTICLES AND CHEMOTHERAPEUTIC AGENTS

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Abstract. *Gold nanoparticles (AuNPs) receive a great deal of attention for biomedical applications due to their unique properties to monitor intracellular delivery of therapeutic agents. Evidently, drug delivery is a compelling field of research due to the need of releasing medicine at specific locations in a controlled manner with a minimum amount of side effects. The present review focuses on the combination of AuNPs with different types of chemotherapeutic agents as potential drug delivery vehicles that can be used in cancer therapy.*

Keywords: gold nanoparticles, chemotherapeutic agents, cancer, drug delivery

1. Introduction

According to the World Health Organization (WHO), cancer is the second major cause of death at a global level, leading to a staggering 9.6 million deaths as of 2018 [1]. The war on cancer has led to intensive research in order to develop alternative methods that would increase the efficacy of antitumor medication while decreasing the potential side effects. Nanotechnology has proven to be a promising alternative to conventional therapies. As nanoparticles are much smaller in size than cells, they can readily and easily penetrate into the cell and interact with DNA, enzymes, proteins and different receptors [2]. Different nanoparticles, NPs, are being widely studied due to their large surface area, enhanced ability to interact with cancerous cells, and capability to be functionalized with specific medication [3].

Gold nanoparticles (AuNPs) are probably the most researched ones in regards to cancer therapy. The leaky tumour vasculature would allow AuNPs to

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