

# **NANO MEDICINE: Towards Development of Patient Friendly Drug Delivery Systems Oncological Applications**

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**Abstract:** *The interest in nanotechnology in cancer treatment and diagnosis is intensified due to the serious side effects caused by anticancer agents due to their cytotoxic actions on normal cells. This non-specific action of chemotherapy has awakened a need for formulations capable of the ultimate goal of improving tumor killing. Nano-oncology, the application of nanobiotechnology in cancer management, is currently the most important area of nanomedicine. Currently, several nanomaterial-based drug delivery systems are in vogue and several others are in various stages of development. Tumor drug delivery systems are expected to be silver bullets for cancer treatment, and several groups are working worldwide to develop powerful systems.*

*Nanoparticles (NPs) have emerged as a versatile platform for biomedical applications, particularly in targeted drug delivery and cancer therapy. This study reports the design, synthesis, and characterization of engineered NPs for enhanced therapeutic efficacy. We fabricated [insert type/material] NPs and functionalized them with [insert targeting ligand/ drug]. The NPs exhibited [insert size/shape] and demonstrated [insert property, e.g., pH-responsive release]. In vitro and in vivo studies revealed [insert results, e.g., enhanced cellular uptake, improved bioavailability, and reduced toxicity]. Our findings suggest that these engineered NPs hold great promise for targeted drug delivery and cancer therapy, offering a potential breakthrough in nanomedicine..*

**Keywords:** Patient-Friendly, Drug-Delivery Systems, Cancer, Nanomedicine