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Patent Search					
Invention Title	NANOTECHNOLOGY-BASED TARGETED DRUG DELIVERY FOR CANCER THERAPY				
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Abstract:

The present invention introduces a novel nanotechnology-based targeted drug delivery system designed for enhanced cancer therapy. By leveraging the unique properties of nanoparticles, this system enables precise delivery of therapeutic agents to tumor sites while minimizing off-target effects on healthy tissues. The nanoparticles are formulated with biocompatible carriers and functionalized with targeting ligands specific to molecular markers overexpressed on the surface of cancer cells. Upon administration to a subject, the nanoparticles selectively accumulate at tumor sites via receptor-mediated targeting, facilitating the specific delivery of therapeutic payloads to cancer cells. Additionally, the system offers the potential for real-time monitoring of drug delivery and tumor response through the incorporation of imaging probes within the nanoparticles. This targeted approach holds promise for overcoming the limitations of conventional chemotherapy, offering improved efficacy, reduced toxicity, and enhanced patient outcomes in the treatment of cancer.

Complete Specification

Description: The embodiments of the present invention generally relates to the field of medical science. More specifically, the invention relates to nanotechnology and pharmaceuticals, particularly focusing on a targeted drug delivery system for cancer therapy.

BACKGROUND OF THE INVENTION

The following description of related art is intended to provide background information pertaining to the field of the disclosure. This section may include certain aspects of the art that may be related to various features of the present disclosure. However, it should be appreciated that this section be used only to enhance the understanding of the reader with respect to the present disclosure, and not as admissions of prior art.

Cancer remains one of the most formidable health challenges globally, with traditional treatment modalities often plagued by non-specificity, systemic toxicity, and the emergence of drug resistance.

Available methods of chemotherapy while effective to some extent, lacks the ability to discriminate between cancerous and healthy cells, leading to severe side effects and diminished therapeutic outcomes.

In response to these challenges the field of nanotechnology has emerged as a promising avenue for revolutionizing cancer therapy Nanoparticles, due to their unique

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