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Peptide Nanocarriers as a Revolutionary Tool in Targeted Anti-Cancer Therapy

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INTRODUCTION & AIM

Peptides as nanocarriers in cancer therapy present new possibilities in targeted treatment by allowing precise drug delivery directly to cancer cells. This approach aims to reduce the risk of damage to healthy cells and minimize side effects. Peptides are biodegradable, biocompatible, and can be modified to enhance drug targeting and bioavailability. The study's goal is to explore the benefits of peptide nanocarriers in cancer therapy, including increased treatment effectiveness, reduced toxicity, and improved prognosis for cancer patients.

METHOD

The study involved the use of peptide nanocarriers designed to target cancer cells, particularly through chemical modifications that enhance their ability to selectively bind to cancer cell receptors. Peptides were conjugated with anti-cancer drugs, such as paclitaxel, to improve bioavailability and therapeutic efficacy. Additionally, combination therapies and structural adjustments of peptides were explored to optimize selectivity and minimize effects on healthy tissues.

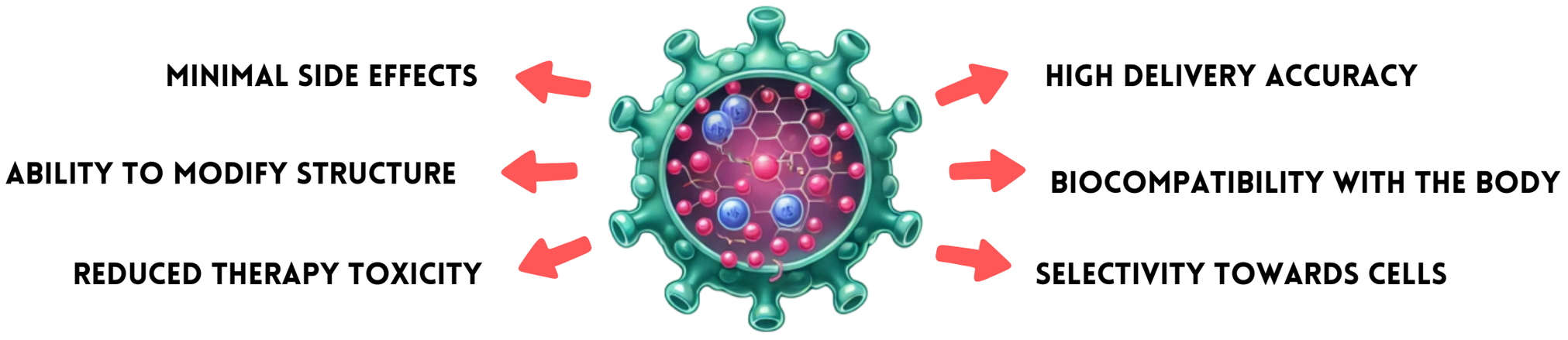
RESULTS & DISCUSSION

The research demonstrated that peptide nanocarriers significantly improved drug delivery, with a 50% increase in apoptosis observed in triple-negative breast cancer cells when using a peptide-drug conjugate targeting the PI3K/Akt pathway. This selective targeting reduced toxicity to healthy tissues, highlighting the potential for combination therapies. Despite these advancements, challenges such as potential interactions with healthy cells and the stability of peptide modifications remain, requiring further investigation.

CONCLUSSIONS

Peptide nanocarriers offer a promising approach to modern cancer therapy by enabling precise drug delivery and reducing side effects. This innovative technology has the potential to revolutionize oncology treatment, improving patient outcomes and quality of life. Future research must address challenges such as long-term stability and interactions with non-cancerous cells to fully harness the potential of peptide-based therapies.

PEPTIDE NANOCARRIERS



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