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Perspective

Strategies of Nanomedicine in Drug Delivery System

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INTRODUCTION

Nano medicine is a new type of treatment that focuses on improving the effectiveness of the medication while minimising negative side effects on healthy tissues. Drug resistance in cancer is a complex process that includes several pathways [1]. Here, we go over the main types of medication resistance and the fresh ways that Nano medicines might help tackle these problems.

DESCRIPTION

Drug selection for individualised patient therapy may be made considerably more intensive and successful with the development of novel nanoparticles that have a large capacity for flexible, quick drug design and manufacture based on tumour genetic profiles. Overcoming various types of number of resistances looks very promising and opens new vistas for cancer treatment because of the sophisticated design and different mechanisms of delivery of drugs known for different Nano drugs, including lipid nanoparticles, polymer conjugated verbs, micelles, polymeric nanoparticles, carbon-based and Nano crystals. Nanoparticle Nano Dynamic Therapy (NDT), which is triggered by either endogenous or exogenous catalysts on Nano sensitizers, can based evaluation radicals for accomplishing effective illness Nano therapies with mitigated adverse reactions and endowed disease specificity [2-5]. This is made possible and promoted by the quick knowledge development of Nano medicine and Nano biotechnology. Traditional light-activated photodynamic, one of the most prevalent NDT modalities is plagued by the crucial and insurmountable problems of the limited skin depth of light as well as the photo toxicity of the sensitizers.

Versatile nanoparticle NDTs have been investigated to overcome these challenges in order to meet a variety of biomedical applications, which heavily rely on the physicochemical features of the included Nano medicines and Nano sensitizers. Son dynamic Therapy (SDT), Piezoelectric Dynamics Therapy (PZDT) and potential anticancer treatment are examples of these different NDTs. Here, the fundamental therapeutic idea and optimisation strategy for enhancing disease-therapeutic effectiveness and biosafety plays crucial roles, functions, as well as biological effects of nanomaterials for facilitating the therapeutic process of NDTs. Also reviewed and explained are the current difficulties and pressing concerns about the therapeutic application of NDTs. Throughout the past few decades, enthusiasm in Nano medicine for tumour therapeutic applications has increased substantially [6]. Nevertheless, before these Nano medicines can reach their target, they must pass through a number of physiological obstacles that are inherent to the tumour microenvironment (TME). Every cancer patient is distinctive because to the intrinsic tumour genetic/phenotypic differences and intratumor heterogeneity that offer distinct clues to each cancer type. This creates new difficulties in developing clinically effective treatments using nanotechnology-based technologies [7]. Understanding the complex interaction among TME individuals and the intricate processes involved is crucial for the development of effective treatment methods since they serve as crucial targets for stopping tumour growth.

CONCLUSION

In this review, we cover the most recent cancer treatment and detection methods based on nanotechnology as well as possible targets for developing new anticancer Nano medicines. With new technology and formulations being developed for a variety of illness situations, Nano medicine is still expanding. Despite the fact that most development focuses on the use of injection Nano medicines for the treatment of neoplasms, there are a number of formulations utilising nanotechnology that may be given orally for noncancerous indications. These Nano medicine remedies were created to deliver drugs locally or systemically throughout the gastrointestinal tract.

REFERENCES

1. Kumar A, Nanda A. Nano cocrystals: Crystal engineering from a nanotechnological perspective. Curr Pharm Des. 2021;27(21): 2445-2453.
2. Cote B, Rao D, Alani AW. Nanomedicine for drug delivery throughout the alimentary canal. Mol Pharm. 2021;19(8):2690-2711.
3. Han Y, Wen P, Li J, Kataoka K. Targeted nanomedicine in cisplatin-based cancer therapeutics. J Control Release. 2022.

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4. Qiu M, Tang Y, Chen J, Muriph R, Ye Z, Huang C, et al. Lung-selective mRNA delivery of synthetic lipid nanoparticles for the treatment of pulmonary lymphangioleiomyomatosis. Proc Natl Acad Sci. 2022;119(8):e2116271119.
5. Lokugamage MP, Vanover D, Beyersdorf J, Hatit MZ, Rotolo L, Echeverri ES, et al. Optimization of lipid nanoparticles for the delivery of nebulized therapeutic mRNA to the lungs. Nat Biomed Eng. 2021;5(9):1059-1068.
6. Chen S, Wu Y, Lortie F, Bernard J, Binder WH, Zhu J. Hydrogen-bonds-mediated nanomedicine: Design, synthesis, and applications. Macromol Rapid Commun. 2022;43(18):2200168.
7. Ouyang J, Rao S, Liu R, Wang L, Chen W, Tao W, et al. 2D materials-based nanomedicine: From discovery to applications. Adv Drug Deliv Rev. 2022:114268.