Protein Nanospheres as Carriers for Active Substances

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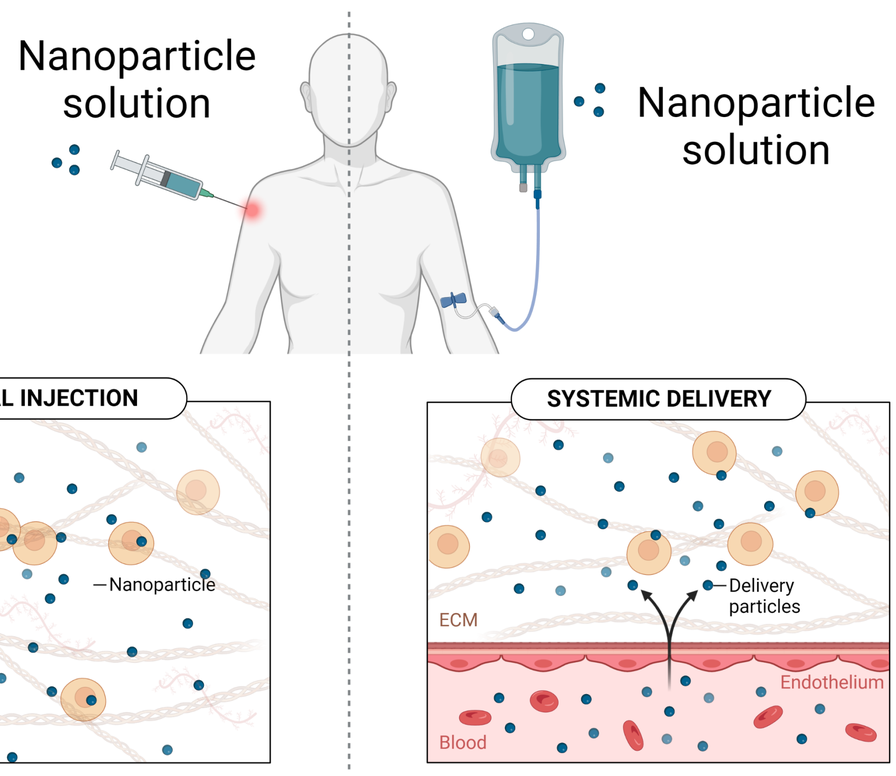
INTRODUCTION

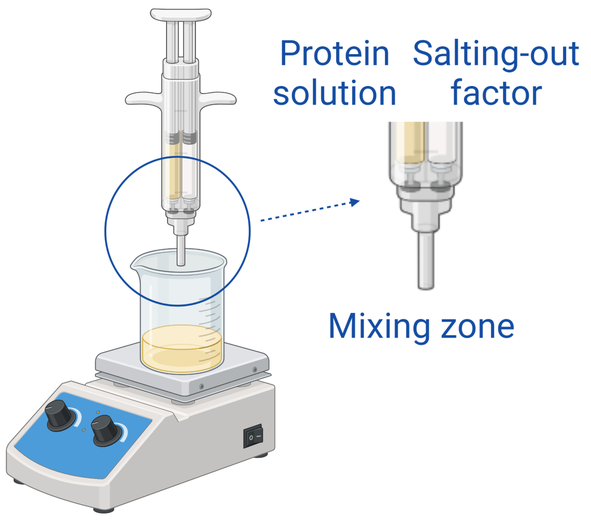
Protein nanospheres have attracted considerable attention in the field of drug delivery and therapeutics due to their remarkable potential as carriers of active agents. These nanoscale structures, composed mainly of biocompatible proteins, offer a versatile platform for encapsulating and delivering a wide range of therapeutic agents, including drugs, peptides and nucleic acids. The goal of the prject was to explore the role of protein nanospheres as drug carriers, covering their fabrication methods, properties and diverse applications. One of the key advantages of protein nanospheres is their ability to protect and stabilize encapsulated substances, increasing their bioavailability and pharmacokinetic profiles. Various methods of engineering protein nanospheres, such as self-organization and chemical modification, allow precise control over their size, shape and drug release kinetics. Moreover, the study addresses to the challenges of delivering drugs based on protein nanospheres, including stability concerns and scaling issues. Nevertheless, their tremendous potential to advance personalized medicine and improve therapeutic outcomes makes protein nanospheres an attractive area of research in drug delivery.

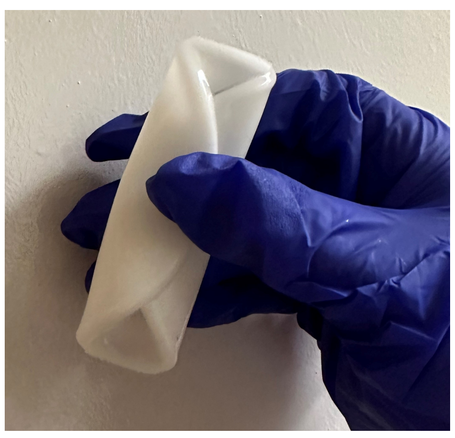
MATERIALS AND METHODS

The study covers both its structure, composition and manufacturing method. Chemically, the carriers consist of only natural ingredients, are characterized by biocompatibility and excellent ability to bind to drug substances. The form of the carriers allows for controlled delivery of precise doses of drugs. The combination of protein carriers with hydrogel material provides a multifunctional action reducing the need for simultaneous application of multiple preparations. The designed method is economical, requiring little energy and raw materials. In turn, the obtained product is an innovative natural carrier, which can find wide application in therapies for dermatological diseases.

RESULTS







SUMMARY

The developed invention has a wide application in the treatment of dermatological diseases with particular emphasis on skin cancer. The use of protein carriers allows controlled delivery of the active substance to the tumor site. The effect is to increase the therapeutic effect of cytostatic drugs without increasing their dosage or frequency of administration. The developed carriers can find application in any type of anticancer therapy and other skin diseases. Due to the form of an easy-to-apply patch, they will also be ideal for applications with higher mobility that are challenging (e.g., on the elbow bends).

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