

Abstract

Protein Nanospheres as Carriers for Active Substances †

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Abstract: Protein nanospheres have garnered significant attention in the field of drug delivery and therapeutics due to their remarkable potential as carriers for active substances. These nanoscale structures, primarily composed of biocompatible proteins, offer a versatile platform for encapsulating and delivering a wide range of therapeutic agents, including drugs, peptides, and nucleic acids. This abstract explores the multifaceted role of protein nanospheres as drug delivery carriers, encompassing their fabrication methods, properties, and diverse applications. One of the key advantages of protein nanospheres lies in their ability to protect and stabilize encapsulated substances, enhancing their bioavailability and pharmacokinetic profiles. Moreover, their tunable surface properties enable specific targeting to disease sites, minimizing off-target effects and reducing systemic toxicity. Various methods of engineering protein nanospheres, such as self-assembly and chemical modification, allow for precise control over their size, shape, and drug release kinetics. This abstract also addresses the challenges associated with protein nanosphere-based drug delivery, including stability concerns and scale-up issues. Nonetheless, their immense potential in advancing personalized medicine and improving therapeutic outcomes makes protein nanospheres a compelling area of research in the realm of drug delivery.

Keywords: nanocarriers; drug delivery; protein

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