Oral Controlled Release Formulation Design and Drug Delivery| DIABETES MELLITUS TYPE 2| Niosomal Carriers Enhance Oral Bioavailability Of Glucocorticoids: Recent Advances in Drug Delivery | Pharmaceutical Sciences: Breakthroughs in Research and Practice

Niosomal Carriers Enhance Oral Bioavailability Of Glucocorticoids: Recent Advances in Drug Delivery

Niosomes are a type of nanocarrier that can significantly enhance the oral bioavailability of drugs, particularly glucocorticoids. This chapter discusses the recent advancements in the use of niosomes for drug delivery, focusing on their applications in the oral administration of glucocorticoids. It covers the theoretical background, experimental evidence, and clinical implications of niosomal drug delivery systems. The chapter highlights the potential benefits of using niosomes, such as improved solubility, stability, and bioavailability, and outlines future directions for research and development in this field.

The use of niosomes in drug delivery offers several advantages over traditional drug delivery methods. These advantages include enhanced solubility and stability, reduced need for preservatives, improved targeting, and reduced toxicity. Furthermore, niosomes can be formulated to target specific tissues or organs, thereby increasing the therapeutic efficacy of the drug while minimizing side effects.

The chapter also discusses the challenges associated with the use of niosomes in drug delivery, such as the lack of regulatory guidelines and the need for further clinical trials. Despite these challenges, the potential benefits of using niosomes in drug delivery are significant, and continued research is expected to lead to further advancements in this field.

In conclusion, niosomes represent a promising approach for enhancing the oral bioavailability of glucocorticoids and other drugs. The use of niosomes in drug delivery is an emerging field that holds great promise for improving the efficacy and safety of drug delivery systems.
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Multifunctional Drug Delivery Systems examines the fabrication, optimization, biological aspects, regulatory and clinical success of wide range of drug delivery carriers. This series reviews multifunctionality and applications of drug delivery systems, industrial trends, regulatory challenges and in vivo success stories. Throughout the volumes discussions on diverse aspects of drug delivery carriers, such as clinical, engineering, and regulatory, facilitate insight sharing across expertise area and form a link for collaborations between industry-academic scientists and clinical researchers. Expectations and Realities of Multifunctional Drug Delivery Systems connects formulation scientists, regulatory experts, engineers, clinical experts and regulatory stake holders. The wide scope of the book ensures it as a valuable reference resource for researchers in both academia and the pharmaceutical industry who want to learn more about drug delivery systems. Other volumes in the Expectations and Realities of Multifunctional Drug Delivery Systems book series: Delivery of Drugs, Volume 2, 9780128177761 Drug Delivery Trends, Volume 1, 9780128178708 Drug Delivery Aspects, Volume 4, 9780128212226 Encompasses functional aspects of nanocarriers Discusses Intellectual Property landscapes of micro nano drug carriers Contains in-depth investigation of specific aspects of drug delivery systems Multifunctional Systems for Combined Delivery, Biosensing, and Diagnostics explores how multifunctional nanocarriers are being used in combined delivery and diagnostics in contemporary medicine. Particular attention is given to efforts to i) reduce the side effects of therapeutic agents, ii) increase the pharmacological effect, and iii) improve aqueous solubility and chemical stability of different therapeutic agents. The chapters focus on applications of nanostructured materials and nanocarriers, highlighting how these can be used effectively in both diagnosis and delivery. This applied focus makes the book an important reference source for those wanting to learn more about how specific nanomaterials and nanotechnology systems can help to solve drug delivery and diagnostics problems. This book is a valuable resource for materials scientists, bioengineers, and medical researchers who are looking for an applications-oriented guide on how nanotechnology and nanomaterials can be used effectively throughout the medical treatment process, from diagnosis to treatment. Explores the benefits of using a variety of nanomaterials as drug delivery agents Explains how nanocarriers can reduce the side effects of therapeutic agents Provides an analysis of the pros and cons of using specific nanocarriers to solve particular diagnosis and delivery problems Nanostructures for Drug Delivery extensively covers the various nanostructured products that have been tested as carriers in target drug delivery systems. In addition, the book analyses the advantages of, and issues related to, using nanostructured materials in drug delivery systems, also detailing various nanocarrier preparation techniques. As delivering the drug to the target site is a major problem in providing effective treatment for many diseases, this book covers the latest advancements in numerous nanotechnological products that are being used in disease detection, controlled drug delivery, as biosensors, and in tissue engineering that have been developed for more efficient patient healthcare. Due to the versatility of nanostructured materials, it is now possible to deliver a drug at its target site in a more accurate and efficient way. This volume is an up-to-date, state-of-the-art work that highlights the principal mechanistic aspects related to the delivery of active nanoscale therapeutic agents (natural or synthetic) and their release profile in different environmental media. It highlights nanoscale encapsulation strategies and discusses both organic and inorganic nanomaterials as carriers and delivery platforms. Demonstrates how nanostructures are successfully employed in drug delivery systems and as drug delivery agents, allowing biomaterials scientists and biochemists to create more effective drug delivery systems. Offers an overview of recent research into the use of nanostructures in drug delivery techniques in a cogent, synthesized way, allowing readers to quickly familiarize themselves with this area. Includes examples of how the application of nanostructures have improved the efficiency of drug delivery systems, showing medical scientists how they are beneficial. This volume will address an important emergent area within the field of immunomics: the discovery of antigens and adjuvants within the context of reverse vaccinology. Conventional approaches to vaccine design and development requires pathogens to be cultivated in the laboratory and the immunogenic molecules within them to be identifiable. Conventional vaccinology is no longer universally successful, particularly for recalcitrant pathogens. By using genomic information we can study vaccine development in silico: 'reverse vaccinology', can identify candidate subunits vaccines by identifying antigenic proteins and by using equally rational approaches to identify novel immune response-enhancing adjuvants Nanotechnology seeks to exploit distinct technological advances controlling the structure of nanoscale biomaterials at a nanodimensional scale approaching individual molecules and their aggregates or supramolecular structures. The term "nanomedicine" is used to describe those technologies under the umbrella of nanotechnology that have therapeutic applications in human health. This book presents recent trends and research achievements in the field of pharmaceutical nanotechnology and advanced drug delivery nanosystems, especially for theranostic purposes. The applications of drug delivery nanosystems considered carriers of active pharmaceutical ingredients (APIs) (e.g., proteins, peptides, and nucleic acids) are analyzed on the basis of technology, preparation protocols, and biomedical applications. The book also extensively reports on the principles, design protocols, and applications of nanosystems in drug delivery, imaging, and targeting of active molecules of pharmaceutical interest. Copyright code : 882528243a660dfde8a1fab9c41ba01c