Controlled And Novel Drug Delivery

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Modeling and Control of Drug Delivery Systems - Ahmad Taher Azar 2021-02-06
Modeling and Control of Drug Delivery Systems provides comprehensive coverage of various drug delivery and targeting systems and their state-of-the-art related works, ranging from theory to real-world deployment and future perspectives. Various drug delivery and targeting systems have been developed to minimize drug degradation and adverse effect and increase drug bioavailability. Site-specific drug delivery may be either an active and/or passive process. Improving delivery techniques that minimize toxicity and increase efficacy offer significant potential benefits to patients and open up new markets for pharmaceutical companies. This book will attract many researchers working in DDS field as it provides an essential source of information for pharmaceutical scientists and pharmacologists working in academia as well as in the industry. In addition, it has useful information for pharmaceutical physicians and scientists in many disciplines involved in developing DDS, such as chemical engineering, biomedical engineering, protein engineering, gene therapy. Presents some of the latest innovations of approaches to DDS from dynamic controlled drug delivery, modeling, system analysis, optimization, control and monitoring Provides a unique, recent and comprehensive reference on DDS with the focus on cutting-edge technologies and the latest research trends in the area Covers the most recent works, in particular, the challenging areas related to modeling and control techniques applied to DDS
Advanced Drug Delivery - Ashim Mitra 2013-08-26
Provides both fundamentals and new and emerging applications Advanced Drug Delivery brings readers fully up to datewith the state of the science, presenting the basics, formulationstrategies, and therapeutic applications of advanced drug delivery.The book demonstrates how core concepts of pharmaceutical sciences,chemistry, and molecular biology can be combined and applied inorder to spark novel ideas to design and develop advanced drugdelivery systems for the treatment of a broad range of humandiseases. Advanced Drug Delivery features contributions from aninternational team of pharmaceutical scientists. Chapters reflect athorough review and analysis of the literature as well as theauthors' firsthand experience developing drug delivery systems. Thebook is divided into four parts: Part I, Introduction and Basics of Advanced DrugDelivery, explores physiological barriers, stability,transporters, and biomaterials in drug delivery Part II, Strategies for Advanced Drug Delivery, offerstested and proven strategies for advanced delivery of both smallmolecules and macromolecules Part III, Translational Research of Advanced DrugDelivery, focuses on regulatory considerations andtranslational applications of advanced drug delivery systems forthe treatment of cardiovascular diseases, cancer, sexuallytransmitted diseases, ophthalmic diseases, and brain diseases Part IV, Future Applications of Advanced Drug Delivery inEmerging Research Areas, examines stem cell research,cell-based therapeutics, tissue engineering, and molecularimaging Each

chapter provides objectives and assessment questions tohelp readers grasp key concepts and assess their knowledge as theyprogress through the book. Advanced Drug Delivery is recommended for graduates andupper-level undergraduates in the pharmaceutical sciences who needa solid foundation in the basics. It is also recommended forpharmaceutical professionals who want to take advantage of new andemerging applications in advanced drug delivery systems.

Microfluidics for Pharmaceutical Applications - Helder A. Santos 2018-10-12

Microfluidics for Pharmaceutical Applications: From Nano/Micro Systems Fabrication to Controlled Drug Delivery is a concept-orientated reference that features case studies on utilizing microfluidics for drug delivery applications. It is a valuable learning reference on microfluidics for drug delivery applications and assists practitioners developing novel drug delivery platforms using microfluidics. It explores advances in microfluidics for drug delivery applications from different perspectives, covering device fabrication, fluid dynamics, cutting-edge microfluidic technology in the global drug delivery industry, lab-on-chip nano/micro fabrication and drug encapsulation, cell encapsulation and delivery, and cell- drug interaction screening. These microfluidic platforms have revolutionized the drug delivery field, but also show great potential for industrial applications. Presents detailed coverage on the fabrication of novel drug delivery systems with desired characteristics, such as uniform size, Janus particles, and particular or combined responsiveness Includes a variety of case studies that explain principles Focuses on commercialization, cost, safety, society and educational issues of microfluidic applications, showing how microfluidics is used in the real world

Targeted & Controlled Drug Delivery: Novel Carrier Systems (HB) - Vyas; Khar 2006-02-01

Polymers for Biomedicine - Carmen Scholz 2017-07-17

Highlighting dynamic developments in polymer synthesis, this book focuses on the chemical techniques to synthesize and characterize biomedically relevant polymers and macromolecules. • Aids researchers developing polymers and materials for biomedical applications • Describes biopolymers from a synthetic perspective, which other similar books do not do • Covers areas that include: cationically-charged macromolecules, pseudo-peptides, polydrugs and prodrugs, controlled radical polymerization, self-assembly, polycondensates, and polymers for surface modification

A Textbook of Novel Drug Delivery Systems - V. Sankar 2019-01-08

A Textbook of Novel Drug Delivery Systems" consists of 10 chapters and covers basic concepts in mucoadhesive drug delivery system, oral controlled drug delivery system, prodrugs, resealed erythrocytes and transdermal drug delivery systems. This book has been written with clear description, figure along with illustrative examples.

Novel Drug Delivery Systems for Chinese Medicines - Nianping Feng 2021-12-01

This book describes the essential and cutting-edge concepts based on the frontier of pharmaceutical research in TCM, underlying scientific principles, and current advancements of drug delivery systems for Chinese medicines, including sustained-release drug delivery systems, trans-nasal drug delivery systems, dermal and transdermal drug delivery systems, etc. Novel carriers and emerging technologies (such as 3D printing) are also covered. The book provides readers with an overall picture of drug delivery systems for Chinese medicines and also yields benefits for the pharmaceutical industry with regard to TCM-based drug development.

Handbook of Pharmaceutical Controlled Release Technology - Donald L. Wise 2000-08-24

The Handbook of Pharmaceutical Controlled Release Technology reviews the design, fabrication, methodology, administration, and classifications of various drug delivery systems, including matrices, and membrane controlled reservoir, bioerodible, and pendant chain systems. Contains cutting-edge research on the controlled delivery of biomolecules!

Nano Drug Delivery Strategies for the Treatment of Cancers - Awesh K. Yadav 2020-09-03

Nano Drug Delivery Strategies for the Treatment of Cancers discusses several current and

promising approaches for the diagnosis and treatment of cancer by using the most recent developments in nanomedical technologies. The book presents introductory information about the biology of different types of cancer in order to provide the reader with knowledge on their specificities. In addition, it discusses various novel drug delivery systems, detailing their functionalities, expected outcomes and future developments in the field, focusing on brain, mouth and throat, breast, lung, liver, pancreas, stomach, colon, bool, skin and prostate cancers. The book is a valuable source for cancer researchers, oncologists, pharmacologists and nanotechnologists who are interested in novel drug delivery systems and devices for treatment of various types of cancer that take advantage of recent advances in this exciting field. Discusses a wide range of promising approaches for the diagnosis and treatment of cancer using the latest advancement in cutting-edge nanomedical technologies Provides foundational information on different types of cancer and their biology to help the reader choose the best nano drug delivery system for patients Presents novel drug delivery systems based on nanoparticles, microparticles, liposomes, self-assembling Micelles and block copolymer micelles

Novel Drug Delivery Systems and Regulatory Affairs - Sudhakar Yajaman & Jayaveera K.N. 2014

Novel Drug Delivery Systems | Transdermal Drug Delivery Systems | Mucoadhesive Drug Delivery Systems | Targeted Drugdelivery Systems | Regulatory Agencies | Quality Assurance | Good Manufacturing Practices | Validation

Novel Drug Delivery Systems for Phytoconstituents - Madhu Gupta 2020

This book discusses general principles of drug targeting and technological concerns of different drugs in delivery systems. It focuses on the development of novel herbal formulations like phytosomes and summarizes their method of preparation, active ingredients types, administration route, biological activity and their applications.

Fundamentals and Applications of Controlled Release Drug Delivery - Juergen Siepmann 2011-12-15

This book approaches the subject from a mechanistic perspective that pitches the language at a level that is understandable to those entering the field and who are not familiar with its common phrases or complex terms. It provides a simple encapsulation of concepts and expands on them. In each chapter the basic concept is explained as simply and clearly as possible without a great deal of detail, then in subsequent sections additional material, exceptions to the general rule, examples, etc., is introduced and built up. Such material was generously supplemented with diagrams; conceptually elegant line diagrams in two or three colors. The artwork was well thought out and able to condense the scientific principles into a novel and visually exciting form. The diagrams encourage browsing or draw the reader to salient points. In addition, the technique of highlighting key concepts in a separate box is used throughout each chapter.

Advances in Controlled Drug Delivery - Steven M. Dinh 2003-03-27

Controlled drug delivery technology bridges the advances in medicine and genomics to the development of effective and innovative therapeutic products. This volume will examine recent research in this field and present the key findings. Advances in Controlled Drug Delivery will focus on the drug delivery of large molecules such as DNA and protein drugs. Novel technologies presented in the volume will include: application of electroporation to deliver naked DNA, novel oral delivery technologies, pulmonary delivery of protein drugs, delivery in the buccal mucosa, and novel approaches in target delivery to the brain using peptide vectors. In addition, the book will discuss the development of novel materials and sensors to enable the delivery of large molecules.

Applications of Polymers in Drug Delivery - Ambikanandan Misra 2014-01-29

Use of polymers has become indispensable in the field of drug delivery. Polymers play a crucial role in modulating drug delivery to exploit maximum therapeutic benefits and have been fundamental in the successful development of several novel drug delivery systems that are now available. This book provides details of the applications of polymeric drug delivery systems that will be of interest to researchers in industries and academia. It describes the

development of polymeric systems ranging from the conventional dosage forms up to the most recent smart systems. The regulatory and intellectual property aspects as well as the clinical applicability of polymeric drug delivery systems are also discussed.Each different drug delivery route is discussed in a separate chapter of the book. All major routes of drug delivery have been covered to provide the reader with a panoramic as well as an in-depth view of the developments in polymer-based drug delivery systems. Appendices are included which incorporate useful pharmaceutical properties of the polymers and important polymeric applications for various drug delivery routes.

Novel Delivery Systems for Transdermal and Intradermal Drug Delivery - Ryan F. Donnelly 2015-09-28

This research book covers the major aspects relating to the use of novel delivery systems in enhancing both transdermal and intradermal drug delivery. It provides a review of transdermal and intradermal drug delivery, including the history of the field and the various methods employed to produce delivery systems from different materials such as device design, construction and evaluation, so as to provide a sound background to the use of novel systems in enhanced delivery applications. Furthermore, it presents in-depth analyses of recent developments in this exponentially growing field, with a focus on microneedle arrays, needle-free injections, nanoparticulate systems and peptide-carrier-type systems. It also covers conventional physical enhancement strategies, such as tape-stripping, sonophoresis, iontophoresis, electroporation and thermal/suction/laser ablation Discussions about the penetration of the stratum corneum by the various novel strategies highlight the importance of the application method. Comprehensive and critical reviews of transdermal and intradermal delivery research using such systems focus on the outcomes of in vivoanimal and human studies. The book includes laboratory, clinical and commercial case studies featuring safety and patient acceptability studies carried out to date, and depicts a growing area for use of these novel systems is in intradermal vaccine delivery. The final chapters review recent patents in this field and describe the work ongoing in industry.

Controlled and Novel Drug Delivery - N. K. Jain 2019-01-30

This book gathers together the research work of leading Indian scientists actually engaged in pharmaceutical research. The contributors are all distinguished experts in their respective fields. All the contributors are scientists working in Indian laboratories, however their achievements in the field are full of valuable information supplemented with adequate references which help the intended readers in digging out the complete information on any aspect. The book has 17 chapters, 150 figures and over 2150 references and will be of immense use for all pharmaceutical industries, RD laboratories, research scientists in universities colleges, teachers as well as post-graduate and graduate students.

Recent Advances in Novel Drug Carrier Systems - Ali Demir Sezer 2012-10-31

This contribution book collects reviews and original articles from eminent experts working in the interdisciplinary arena of novel drug delivery systems and their uses. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of different drug delivery systems. Since the advent of analytical techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. On the other hand, this reference discusses advances in the design, optimization, and adaptation of gene delivery systems for the treatment of cancer, cardiovascular, pulmonary, genetic, and infectious diseases, and considers assessment and review procedures involved in the development of gene-based pharmaceuticals.

Novel Drug Delivery Technologies - Ambikanandan Misra 2020-02-12

The application of drug delivery is a valuable, cost-effective lifecycle management resource. By endowing drugs with new and innovative therapeutic benefits, drug delivery systems extend products' profitable lifecycle, giving pharmaceutical companies competitive and financial advantages, and providing patients with improved medications. Formulation development is now being used to create new dosage forms for existing products, which not

only reduces the time and expense involved in new drug development, but also helps with regard to patent protection and bypassing existing patents. Today's culture demands convenience, a major factor determining adherence to drug therapy. Over the past few years, patient convenience-oriented research in the field of drug delivery has yielded a range of innovative drug-delivery options. As a result, various drug-delivery systems, including medicated chewing gums, oral dispersible tablets, medicated lozenges and lollipops, have now hit the market and are very popular. These dosage forms offer a highly convenient way to dose medications, not only for special population groups with swallowing difficulties, such as children and the elderly, but for the general populace as well. This book provides valuable insights into a number of formulation design approaches that are currently being used, or could be used, to provide new benefits from existing drug molecules.

Advances in Controlled and Novel Drug Delivery - N. K. Jain 2017-10-30

Bioadhesive Drug Delivery Systems - Edith Mathiowitz 1999-07-13

This invaluable reference presents a comprehensive review of the basic methods for characterizing bioadhesive materials and improving vehicle targeting and uptake-offering possibilities for reformulating existing compounds to create new pharmaceuticals at lower development costs. Evaluates the unique carrier characteristics of bioadhesive polymers and their power to enhance localization of delivered agents, local bioavailability, and drug absorption and transport! Written by over 50 international experts and reflecting broad knowledge of both traditional bioadhesive strategies and novel clinical applications, Bioadhesive Drug Delivery Systems discusses mechanical and chemical bonding, polymer-mucus interactions, the effect of surface energy in bioadhesion, polymer hydration, and mucus rheology analyzes biochemical properties of mucus and glycoproteins, cell adhesion molecules, and cellular interaction with two- and three-dimensional surfaces covers microbalances and magnetic force transducers, atomic force microscopy, direct measurements of molecular level adhesions, and methods to measure cell-cell interactions examines bioadhesive carriers, diffusion or penetration enhancers, and lectin-targeted vehicles describes vaginal, nasal, buccal, ocular, and transdermal drug delivery reviews bioadhesive interactions with the mucosal tissues of the eye and mouth, and those in the respiratory, urinary, and gastrointestinal tracts explores issues of product development, clinical testing, and production and more! Amply referenced with over 1400 bibliographic citations, and illustrated with more than 300 drawings, photographs, tables, and display equations, Bioadhesive Drug Delivery Systems serves as a sound basis for innovation in bioadhesive systems and an excellent introduction to the subject. This unique reference is ideal for pharmaceutical scientists and technologists; chemical, polymer, and plastics engineers; biochemists; physical, surface, and colloid chemists; biologists; and upper-level undergraduate and graduate students in these disciplines.

Drug Delivery - Eric P. Holowka 2014-11-22

Current pharmaceutical and clinical approaches to the treatment of disease suffer from the inherent limitations in the specialization of drugs introduced to physiological systems. The interface of clinical and material sciences has allowed for a broad spectrum of creative approaches with the potential to alleviate these shortcomings. However, the synergy of these disciplines also presents problems in which nascent technology lacks the necessary evaluation within its intended clinical environment. Given the growing potential for materials science to address a number of unanswered therapeutic needs, it remains even more pressing to validate emerging drug delivery technologies in actual clinical environments. Drug Delivery: Materials Design and Clinical Perspective addresses the core fundamentals of drug delivery using material science and engineering principles, and then applies this knowledge using prominent examples from both the scientific literature and clinical practice. Each chapter focuses on a specific drug delivery technology, such as controlled-release materials, thin-film materials, or smart materials. Within each chapter, an initial section on "Engineering Concepts"

reviews the relevant fundamental principles that guide rational design. The following section on “Materials Design” discusses how the design process applies engineering concepts for use in physiological systems. A third section on “Implementation” discusses current approaches in the literature which have demonstrated effective drug delivery in controlled environments. Finally, each chapter contains several sections on “Clinical Applications” which describe the validity of materials approaches from a clinical perspective; these sections review the safety and efficacy of drug delivery systems for specific, compelling medical applications. The book thereby bridges materials science with clinical medicine, and provides the reader with a bench-to-bedside view of novel drug delivery systems. · Provides a comprehensive description of drug delivery systems from a materials perspective · Includes a wide-ranging discussion of clinical applications of drug delivery systems · Presents separate chapters on controlled release materials, thin film materials, self-microemulsifying materials, smart materials, etc. · Covers fundamental engineering principles, rational materials design, implementation testing, and clinical applications for each material type

Engineering Drug Delivery Systems - Ali Seyfoddin 2019-11-15

Engineering Drug Delivery Systems is an essential resource on a variety of biomaterials engineering approaches for creating drug delivery systems that have market and therapeutic potential. The book comprehensively discusses recent advances in the fields of biomaterials and biomedical sciences in relation to drug delivery. Chapters provide a detailed introduction to various engineering approaches in designing drug delivery systems, delve into the engineering of body functions, cover the selection, design and evaluation of biomaterials, and discuss the engineering of colloids as drug carriers. The book's final chapters address the engineering of implantable drug delivery systems and advances in drug delivery technology. This book is an invaluable resource for drug delivery, materials scientists and bioengineers within the pharmaceutical industry. Examines the properties and synthesis of biomaterials for successful drug delivery Discusses the important connection between drug delivery and tissue engineering Includes techniques and approaches applicable to a wide range of users Reviews innovative technologies in drug delivery systems such as 3-D printed devices for drug delivery

Controlled Drug Delivery Systems - Emmanuel C. Opara 2020-02-28

This book will describe current research on drug delivery systems that encompass four broad categories, namely: routes of delivery, delivery vehicles, payload, and targeting strategies. Where appropriate delivery vehicles and relevant release of specific agents in any of these categories in clinical application will be discussed. All chapters will highlight the translational aspects of the various technologies discussed and will provide insights into the advantages of such delivery systems over current ones in clinical or research use. Each technology reviewed in this book will have significant potential to improve patients' lives by enhancing the therapeutic efficacy of drugs. This book: Discusses the various factors that mitigate effective oral insulin delivery and the current status of research efforts to overcome these barriers along with recent clinical projections Examines the advantages and disadvantages of each drug delivery system Examines the standard method of accomplishing controlled drug release through the incorporation of the drugs within polymeric biomaterials such as capsules and microcapsules as well as other vehicles such as liposomes Discusses various controlled drug delivery systems, including sustained release delivery systems and pulse or delayed release, e.g. to target different regions of the gastrointestinal tract. In view of these wide-ranging technological areas, and the up-to-date discussions of opportunities and challenges associated with these applications, the book should provide readers from technology, materials science, pharmacology and clinical disciplines with very valuable information.

Electronically Controlled Drug Delivery - Bret Berner 1998-06-01

Developments in microelectronics, micromachining, and medical device design show great promise for creating electronically-assisted intelligent therapeutic systems for home use diagnostics and out-patient care. The costs

of therapeutic development and distribution have been prohibitive, however, important strides are being made. Electronically Controlled Drug Delivery provides an overview of advances in drug delivery using electronics to regulate the delivery profile and optimize therapy. Electronically Controlled Drug Delivery offers students, researchers, and industrial scientists current broad-ranged coverage of novel electronic drug delivery technologies. The therapeutic rationale, underlying principles, basics of critical technologies, and application to potential commercial products and novel technologies are all addressed in this state-of-the-art reference.

Design of Controlled Release Drug Delivery Systems - Xiaoling Li 2005-11-24

The goal of every drug delivery system is to deliver the precise amount of a drug at a pre-programmed rate to the desired location in order to achieve the drug level necessary for the treatment. An essential guide for biomedical engineers and pharmaceutical designers, this resource combines physicochemical principles with physiological processes to facilitate the design of systems that will deliver medication at the time and place it is most needed.

A Novel Approach For Controlled Drug Delivery - Microparticles - Shrujal Patel 2012

Microparticles are one of the key novel drug delivery systems has been widely used to precisely modulate release rate. Microparticles based polymeric systems fabricated using suitable carrier has been extensively explored as an effective matrix for controlled and sustained release delivery of many drugs. With the controlled release systems, the rate of drug release matches the rate of drug elimination, and therefore the drug concentration is within the therapeutic window for the majority of the 24-hr period.The aim of this study was to prepare Eudragit microspheres containing Tramadol HCl by solvent evaporation method to achieve a controlled drug release profile. Investigation of the effect of various processing and formulation factors such as polymer type, drug: polymer ratio, stirring speed to obtain spherical particles. Then yield of production, shape, and mean particle size, particle size distribution, encapsulation efficiency, surface properties and release rate of drug from the microspheres were performed.

Localized Micro/Nanocarriers for Programmed and On-Demand Controlled Drug Release - Seyed Morteza Naghib 2022-09-30

This book provides a comprehensive overview of the localized drug delivery system landscape. The 10 chapters provide a detailed introduction in polymers, nanostructures and nanocomposites for developing localized controlled drug delivery systems (LCDDSs) in the form of stimuli-responsive delivery systems, targeted drug delivery systems or the combination of both. A discussion on manufacturing techniques, optimization, challenges and adaptation of LCDDSs for the treatment of a wide range of diseases is also included. This simple and informative resource conveys an understanding about designing novel drug delivery systems to students in advanced pharmacology, biotechnology, materials science and biochemistry study programs. Readers will be equipped with the knowledge of regulating drug release rates to get a desired pharmacological profile, that helps a researcher to ensure a high therapeutic effectiveness. The detailed information about various drug delivery systems and a compilation of recent literature sources also paves the way for research scholars to construct a drug targeting framework for their research plans.

Novel Platforms for Drug Delivery Applications - Sangita Das 2022-11-18

Novel Platforms for Drug Delivery Applications covers diverse aspects in the design, synthesis and characterization of novel drug delivery platforms and devices. This book comprehensively details the development, application and performance of various novel molecular frameworks as potent drug delivery vehicles. Chapters cover a range of materials and molecular platforms for drug delivery, from hydrogels, nanocarriers and metal-organic-frameworks, to ?-cyclodextrin and polyphosphazene. Each chapter discusses the benefits and limitations of each drug delivery system, as well as toxicological and safety implications. This book offers an interdisciplinary approach to this fast-moving topic, bridging the disciplines of materials science and pharmacology. Provides an up-to-

date single resource on novel drug delivery platforms, a rapidly evolving field of research Covers a broad range of materials, systems and release mechanisms, including in vivo and in vitro studies Describes the synthesis, properties, formulation and application of various novel drug delivery systems

Controlled Release Veterinary Drug Delivery - M.J. Rathbone 2000-07-20

Many controlled release veterinary drug delivery systems (CRVDDS) are presently in use, and recently there has been a host of new CRVDDS within veterinary medicine. The challenges of this area of drug delivery arise from the unique anatomy and physiology of the target animal, the cost constraints associated with the value of the animal being treated and the extended periods of time that delivery must be sustained for (often measured in months). The purpose of this book is to introduce the reader to the unique opportunities and challenges of the field of CRVDDS and to explain and discuss the basic controlled release principles underlying the development of CRVDDS. Its aim is to provide an overview of many of the areas where CRVVDS have application, and to highlight the opportunities and prospects for controlled release technology in the veterinary field. Controlled Release Veterinary Drug Delivery comprises chapters that provide workers in the field (and those interested in this area) with information on the design, development and assessment of a variety of CRVDDS. The book contains chapters that describe the relevant animal physiological and anatomical considerations alongside descriptions of current and emerging controlled release delivery systems for a variety of routes for drug delivery, and present overviews on the physical and chemical assessment of veterinary controlled release delivery systems. The veterinary area is abound with opportunities for the development of controlled release drug delivery technologies. It is an area of medicine that is open to the acceptance of novel drug delivery devices, and which readily encompasses the use of novel routes of administration. It is an area of many unmet needs, most of which offer opportunities and unique challenges for the innovative formulation scientist to provide solutions. This book will provide an insight into the biological, clinical and pharmaceutical challenges that face the formulation scientist in this interesting and diverse area of research.

Novel Drug Delivery Systems for Phytoconstituents - Madhu Gupta 2019-07-23

Novel Drug Delivery Systems for Phytoconstituents discusses general principles of drug targeting, construction material and technological concerns of different phytoconstituent in delivery systems. It focuses on the development of novel herbal formulations and summarizes their method of preparation, type of active ingredients, route of administration, biological activity and their applications. It dicusses therapeutic activities of plant derived chemicals, their limitations in clinical applications and novel drug delivery solutions to overcome them to provide better therapeutic effects with controlled and targeted drug delivery. Focus on drug delivery of phytomolecules Act as bridge between natural product scientist and clinical doctors Discusses mechanism of poor bioavailability of herbal molecules Increases awareness towards phytochemical efficacy Summarizes efficient novel delivery systems-based formulations. It extensively covers the applications of novel drug delivery systems including polymeric nanoparticles, solid lipid nanoparticles, nanostructured lipid capsules, liposomes, phytosomes, microsphere, transferosomes, and ethosomes. Some chapters are especially focused on anticancer phytodrugs, silymarin, andrographolide, berberine, and curcumin delivery with special emphasis on their application.

Novel Drug Delivery Systems - Dulal Krishna Tripathi 2020-01-27

Novel Drug Delivery Systems - Yie Chien 2019-08-30

A comprehensive treatment of the science, technology, and regulation of rate-controlled administration of therapeutic agents, with coverage of the basic concepts, fundamental principles, biomedical rationales, and potential applications. This revised and updated edition (first in 1982) incorporates

Controlled Drug Delivery - Joseph Robinson 1987-01-30

Controlled Drug Delivery Systems - Emmanuel C. Opara 2020

This book will describe current research on drug delivery systems that encompass four broad categories, namely: routes of delivery, delivery vehicles, payload, and targeting strategies. Where appropriate delivery vehicles and relevant release of specific agents in any of these categories in clinical application will be discussed. All chapters will highlight the translational aspects of the various technologies discussed and will provide insights into the advantages of such delivery systems over current ones in clinical or research use. Each technology reviewed in this book will have significant potential to improve patients' lives by enhancing the therapeutic efficacy of drugs. This book: Discusses the various factors that mitigate effective oral insulin delivery and the current status of research efforts to overcome these barriers along with recent clinical projections Examines the advantages and disadvantages of each drug delivery system Examines the standard method of accomplishing controlled drug release through the incorporation of the drugs within polymeric biomaterials such as capsules and microcapsules as well as other vehicles such as liposomes Discusses various controlled drug delivery systems, including sustained release delivery systems and pulse or delayed release, e.g. to target different regions of the gastrointestinal tract. In view of these wide-ranging technological areas, and the up-to-date discussions of opportunities and challenges associated with these applications, the book should provide readers from technology, materials science, pharmacology and clinical disciplines with very valuable information.

Novel Drug Delivery System - Sudhir Pandya 2012

The design of an controlled drug delivery system should be primarily aimed at achieving more predictable and increased bioavailability of drugs. Over the years, novel dosage forms have become increasingly sophisticated with major role being played by controlled release drug delivery systems. Such systems release drug at predetermined rate, as determined by drug pharmacokinetics and desired therapeutic concentration. It is evident from the recent scientific and patent literature that an increased interest in novel dosage forms that are retained in the body for a prolonged and predictable period of time exists today in academic and industrial research groups. One of the most feasible approaches for achieving a prolonged and predictable drug delivery profile in the GI tract is to control the gastric residence time (GRT). Dosage forms with a prolonged GRT, i.e. gastro-retentive dosage forms (GRDFs), provide new and important therapeutic options

Smart Drug Delivery System - Ali Demir Sezer 2016-02-10

This contribution book collects reviews and original articles from eminent experts working in the interdisciplinary arena of novel drug delivery systems and their uses. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of different smart drug delivery systems. Since the advent of analytical techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. On the other hand, this reference discusses advances in the design, optimization, and adaptation of gene delivery systems for the treatment of cancer, cardiovascular, diabetic, genetic, and infectious diseases, and considers assessment and review procedures involved in the development of gene-based pharmaceuticals.

Fundamentals of Drug Delivery - Heather A. E. Benson 2021-10-12

A comprehensive guide to the current research, major challenges, and future prospects of controlled drug delivery systems Controlled drug delivery has the potential to significantly improve therapeutic outcomes, increase clinical benefits, and enhance the safety of drugs in a wide range of diseases and health conditions. Fundamentals of Drug Delivery provides comprehensive and up-to-date coverage of the essential principles and processes of modern controlled drug delivery systems. Featuring contributions by respected researchers, clinicians, and pharmaceutical industry professionals, this edited volume reviews the latest research in the field and addresses the many issues central to the development of effective, controlled drug delivery. Divided in three parts, the book begins by introducing the

concept of drug delivery and discussing both challenges and opportunities within the rapidly evolving field. The second section presents an in-depth critique of the common administration routes for controlled drug delivery, including delivery through skin, the lungs, and via ocular, nasal, and otic routes. The concluding section summarizes the current state of the field and examines specific issues in drug delivery and advanced delivery technologies, such as the use of nanotechnology in dermal drug delivery and advanced drug delivery systems for biologics. This authoritative resource: Covers each main stage of the drug development process, including selecting pharmaceutical candidates and evaluating their physicochemical characteristics Describes the role and application of mathematical modelling and the influence of drug transporters in pharmacokinetics and drug disposition Details the physiology and barriers to drug delivery for each administration route Presents a historical perspective and a look into the possible future of advanced drug delivery systems Explores nanotechnology and cell-mediated drug delivery, including applications for targeted delivery and toxicological and safety issues Includes comprehensive references and links to the primary literature Edited by a team of of internationally-recognized experts, Fundamentals of Drug Delivery is essential reading for researchers, industrial scientists, and advanced students in all areas of drug delivery including pharmaceutics, pharmaceutical sciences, biomedical engineering, polymer and materials science, and chemical and biochemical engineering.

Controlled Drug Delivery - M A Mateescu 2014-12-09

In complex macromolecules, minor modifications can generate major changes, due to self-assembling capacities of macromolecular or supramolecular networks. Controlled Drug Delivery highlights how the multifunctionality of several materials can be achieved and valorized for pharmaceutical and biopharmaceutical applications. Topics covered in this comprehensive book include: the concept of self-assembling; starch and derivatives as pharmaceutical excipients; and chitosan and derivatives as biomaterials and as pharmaceutical excipients. Later chapters discuss polyelectrolyte complexes as excipients for oral administration; and natural semi-synthetic and synthetic materials. Closing chapters cover protein-protein associative interactions and their involvement in bioformulations; self-assembling materials, implants and xenografts; and provide conclusions and perspectives. Offers novel perspectives of a new concept: how minor alterations can induce major self-stabilization by cumulative forces exerted at short and long distances Gives guidance on how to approach modifications of biopolymers for drug delivery systems and materials for implants Describes structure-properties relationships in proposed excipients, drug delivery systems and biomedical materials

Novel Drug Delivery Systems, Second Edition, - Yie Chien 1991-10-31

A comprehensive treatment of the science, technology, and regulation of rate-controlled administration of therapeutic agents, with coverage of the basic concepts, fundamental principles, biomedical rationales, and potential applications. This revised and updated edition (first in 1982) incorporates

New Delivery Systems for Controlled Drug from Naturally Occuring Materials - Nicholas Parris 2008-11-27

This book is directed toward the use of natural materials in the development of novel drug delivery systems and regeneration technologies