Reviews Nanotechnology In Ocular Drug Delivery

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Ocular Drug Delivery Systems

Stimuli Responsive Polymeric Nanocarriers for Drug Delivery Applications: Volume Two: Advanced Nanocarriers for Therapeutics discusses, in detail, the recent trends in designing dual and multi-responsive polymers and nanoparticles for safe drug delivery. Chapters cover dual-responsive polymeric nanocarriers for drug delivery and their different stimuli, multi-responsive polymeric nanocarriers, and the therapeutic applications of stimuli-responsive polymers. With an emphasis on advanced medical applications and synergistic operational and technological methodologies for the improvement of polymers systems for the production of stimuli-responsive polymers, this book is essential reading for materials scientists and researchers working in the drug delivery and pharmaceutical industries. As innovation and development in the area of stimuli responsive polymer-based nanomaterials for drug delivery is moving fast and there is an increased global demand for biodegradable and biocompatible responsive polymers and nanoparticles for safe drug delivery, users will find this to be a timely resource. Focusses on the most advanced technologies, recent evaluation methods, technical aspects, and advanced synthesis techniques stimuli-responsive polymers Examines advanced medical applications of stimuli responsive polymers Analyzes synergistic operational and technological methodologies for the improvement of polymer systems for

the production of stimuli-responsive polymers in drug delivery

Nanomedicine for the Treatment of Disease

Designed to foster a stronger awareness and exploration of the subject by practicing clinicians, medical researchers and scientists, The Clinical Nanomedicine Handbook discusses the integration of nanotechnology, biology, and medicine from a clinical point of view. The book highlights relevant research and applications by specialty; it examines nanotechnology in depth, and the potential to solve medical problems. It also increases literacy in nanotechnology, and allows for more effective communication and collaboration between disciplines. Details worldwide developments in nanomedicine Provides a comprehensive roadmap of the state of nanomedicine in numerous medical specialties Bridges the gap between basic science research, engineering, nanotechnology, and medicine This text discusses what nanomedicine is, how it is currently used, and considers its potential for future applications. It serves as a reference for clinicians, including physicians, nurses, health-care providers, dentists, scientists, and researchers involved in clinical applications of nanotechnology.

Nanoscale Fabrication, Optimization, Scale-up and Biological Aspects of Pharmaceutical Nanotechnology

A multidisciplinary approach is increasingly being adapted by the Pharmaceutical industry to tackle several challenges in developing efficacious treatment solutions. The field of Ophthalmology is no less different. Treatise on Ocular Drug Delivery is a unique collection of information put together by various experts in the field. One of the major goals behind this volume is to link clinical information with the current strategies employed in ocular drug delivery. This monograph covers a range of topics on ocular pharmacology. Chapters in the e-book cover several aspects of drug delivery research such as the biochemical background of specific eye diseases, challenges for ocular drug delivery, the role of influx and efflux transporters, novel drug delivery systems, pharmacokinetics, regulatory aspects, and patenting opportunities for researchers. This E-Book would serve as a suitable reference for pharmacy graduates, medical students, professional scientists and ophthalmic clinicians in academic and industrial laboratories.

Design of Nanostructures for Versatile Therapeutic Applications

Advanced 3D-Printed Systems and Nanosystems for Drug Delivery and Tissue Engineering explores the intricacies of nanostructures and 3D printed systems in terms of their design as drug delivery or tissue engineering devices, their further evaluations and diverse applications. The book highlights the most recent advances in both nanosystems and 3D-printed systems for both drug delivery and tissue engineering applications. It discusses the convergence of biofabrication with

nanotechnology, constructing a directional customizable biomaterial arrangement for promoting tissue regeneration, combined with the potential for controlled bioactive delivery. These discussions provide a new viewpoint for both biomaterials scientists and pharmaceutical scientists. Shows how nanotechnology and 3D printing are being used to create systems which are intelligent, biomimetic and customizable to the patient Explores the current generation of nanostructured 3D printed medical devices Assesses the major challenges of using 3D printed nanosystems for the manufacture of new pharmaceuticals

Nanostructured Biomaterials for Overcoming Biological Barriers

Nanoscale Fabrication, Optimization, Scale-up and Biological Aspects of Pharmaceutical Nanotechnology focuses on the fabrication, optimization, scale-up and biological aspects of pharmaceutical nanotechnology. In particular, the following aspects of nanoparticle preparation methods are discussed: the need for less toxic reagents, simplification of the procedure to allow economic scale-up, and optimization to improve yield and entrapment efficiency. Written by a diverse range of international researchers, the chapters examine characterization and manufacturing of nanomaterials for pharmaceutical applications. Regulatory and policy aspects are also discussed. This book is a valuable reference resource for researchers in both academia and the pharmaceutical industry who want to learn more about how nanomaterials can best be utilized. Shows how nanomanufacturing techniques can help to create more effective, cheaper pharmaceutical products Explores how nanofabrication techniques developed in the lab have been translated to commercial applications in recent years Explains safety and regulatory aspects of the use of nanomanufacturing processes in the pharmaceutical industry

Advanced 3D-Printed Systems and Nanosystems for Drug Delivery and Tissue Engineering

Unequalled in scope, depth, and clinical precision, Retina, 5th Edition keeps you at the forefront of today’s new technologies, surgical approaches, and diagnostic and therapeutic options for retinal diseases and disorders. Comprehensively updated to reflect everything you need to know regarding retinal diagnosis, treatment, development, structure, function, and pathophysiology, this monumental ophthalmology reference work equips you with expert answers to virtually any question you may face in practice. Consult this title on your favorite e-reader with intuitive search tools and adjustable font sizes. Elsevier eBooks provide instant portable access to your entire library, no matter what device you're using or where you're located. Examine and evaluate the newest diagnostic technologies and approaches that are changing the management of retinal disease, including future technologies which will soon become the standard. Put the very latest scientific and genetic discoveries, diagnostic imaging methods, drug therapies, treatment recommendations, and surgical techniques to work in your practice. Benefit from the extensive knowledge and experience of esteemed editor Dr. Stephen Ryan, five expert co-editors, and a truly global perspective from 358 other world authorities across Europe, Asia,

Australasia, and the Americas. Make the best use of new technologies with expanded and updated coverage of optical coherence tomography (OCT), fundus imaging, and autofluorescence imaging. Apply the latest knowledge on anti-VEGF therapy for age related macular degeneration, diabetic retinopathy and vein disease. Learn about artificial vision, drug delivery to the posterior segment, advances in macular surgery, vitrectomy, and complex retinal detachment, with updates on tumors, retinal genetics, cell biology, important basic science topics, and much more. Get the most out of new pharmacologic approaches in the management of age-related macular degeneration and diabetic retinopathy. In your practice, diagnostic evaluations, and now even treatments, will be influenced by recent scientific discoveries such as in the areas of nanotechnology, neuro protection, stem cells and gene therapy, among other scientific contributions. View videos of surgical procedures and access the complete contents of Retina, 5th Edition online at www.expertconsult.com, fully searchable, with regular updates and a downloadable image gallery.

The Clinical Nanomedicine Handbook

The eye is a computerized system that has been designed for self-defense, and these defense mechanisms create challenges in administration of medications to the eye. Therefore, ocular drug delivery has been a major challenge to drug delivery researchers. There are on-going studies, in search of treatment especially for the diseases affecting the posterior segment of the eye. This book gives and overview of the background of ocular drug delivery and is unique for pharmacists, medical practitioners, students and drug delivery researchers.

Retinal Pharmacotherapy E-Book

Nanoarchitectonics for Smart Delivery and Drug Targeting is one of the first books on the market to exclusively focus on the topic of nanoarchitectonics, a rapidly developing area of nanotechnology which allows scientists to arrange nanoscale structural units, typically a group of atoms or molecules, in an intended configuration. This book assesses novel applications of nanomaterials in the areas of smart delivery and drug targeting using nanoarchitectonics and discusses the advantages and disadvantages of each application. Provides a scholarly introduction to the uses of nanoarchitectonics in drug delivery and targeting Explores novel opportunities and ideas for developing and improving nanoscale drug delivery systems through the use of nanoarchitectonics, allowing scientists to see how this exciting new technology is used in practice Assesses the pros and cons of each application, allowing readers to assess when it is most appropriate to use nanoarchitectonics in drug delivery

Nanotechnology Methods for Neurological Diseases and Brain Tumors

Nanoarchitectonics in Biomedicine describes this new area of nanoscience that has emerged as a major branch of nanoscience. The book brings together recent applications and discusses the advantages and disadvantages of each process, offering international perspectives on the technologies based on these findings. It offers new insights for nanoarchitectonics, starting with the currently used methods of synthesis and characterization of such materials, along with their biomedical applications. Authored by a wide range of international scientists, this volume shows how nanoarchitectonics is being used to create more efficient medical treatment solutions. Users will find this to be an important research resource for those wanting to learn more on the emerging topic of nanoarchitectonics in biomedical science. Explores how design aspects, smart materials and personalized materials are used in biomedicine today Offers global perspectives on how nanoarchitectonics is used in different regions Presents an important research resource for those wanting to learn more on the emerging topic of nanoarchitectonics in biomedical science

Ocular Drug Delivery: Advances, Challenges and Applications

Organic Materials as Smart Nanocarriers for Drug Delivery presents the latest developments in the area of organic frameworks used in pharmaceutical nanotechnology. An up-to-date overview of organic smart nanocarriers is explored, along with the different types of nanocarriers, including polymeric micelles, cyclodextrins, hydrogels, lipid nanoparticles and nanoemlusions. Written by a diverse range of international academics, this book is a valuable reference for researchers in biomaterials, the pharmaceutical industry, and those who want to learn more about the current applications of organic smart nanocarriers. Explores the most recent molecular- and structure-based applications of organic smart nanocarriers in drug delivery Highlights different smart nanocarriers and assesses their intricate organic structural properties for improving drug delivery Assesses how molecular organic frameworks lead to more effective drug delivery systems

Lipid Nanocarriers for Drug Targeting

The use of pharmacotherapeutics in the management of retinal diseases is rapidly evolving, and a favorable therapy for the patient. Today anti-VEGF agents are used for a range of indications from inflammation-related choroidal neovascularization to macular edema secondary to retinal vein occlusion or diabetic retinopathy. Beyond VEGF, there is an array of target areas under investigation – not only for vascular pathologies such as age-related macular degeneration and diabetic eye disease, but also for degenerative, infectious and inflammatory retinal conditions. This publication discusses many aspects from basic research on the retina, to animal models for retinal drug delivery, retinal diseases that are amenable to pharmacotherapy and also drugs and mechanisms in retinal diseases. Anyone concerned with the management of retinal diseases - the general ophthalmologist and the retina specialist alike – will find this book indispensable reading.

Nanoengineered Biomaterials for Regenerative Medicine

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.

Nanostructures for Drug Delivery

Drug Delivery Aspects: Expectations and Realities of Multifunctional Drug Delivery Systems examines the fabrication, optimization, and scale-up of nano and micro carriers. Various aspects like conversion of micro-nano particles into solid dosage form, large scale industry manufacturing challenges of nanocarriers, regulatory considerations on drug device combinations are featured in this volume. Written by a diverse range of international researchers from industry and academia, the chapters examine specific aspects of characterization and manufacturing for pharmaceutical applications as well as regulatory and policy aspects. The Multifunctional Drug Delivery Systems books provide a platform to discuss opportunities and challenges in development of micro-nanomedicine and other drug delivery systems, review industrial manufacturing challenges, discuss current and future market trends, facilitate the insight sharing within various expertise area, and establish collaborations between academic scientists, industrial and clinical researchers. This book connects formulation scientists, regulatory experts, engineers, clinical experts and regulatory stake holders. The wide scope of the book ensures it is a valuable reference resource for researchers in both academia and the pharmaceutical industry who want to learn more about the status of drug delivery systems.

Retinal Pharmacotherapeutics

Nanoscience in Dermatology covers one of the two fastest growing areas within dermatological science, nanoscience and nanotechnology in dermatology. Recently, great progress has been made in the research and development of nanotechnologies and nanomaterials related to various applications in medicine and, in general, the life sciences. There is increasing enthusiasm for nanotechnology applications in dermatology (drug delivery, diagnostics, therapeutics, imaging,

sensors, etc.) for understanding skin biology, improving early detection and treatment of skin diseases, and in the design and optimization of cosmetics. Light sensitive nanoparticles have recently been explored, opening a new era for the combined applications of light with nanotechnology, also called photonanodermatology. However, concerns have been raised regarding the adverse effects of intentional and unintentional nanoparticle exposure and their toxicity. Written by experts working in these exciting fields, this book extensively covers nanotechnology applications, together with the fundamentals and toxicity aspects. It not only addresses current applications of nanotechnology, but also discusses future trends of these ever-growing and rapidly changing fields, providing scientists and dermatologists with a clear understanding of the advantages and challenges of nanotechnology in skin medicine. Provides knowledge of current and future applications of nanoscience and nanotechnology in dermatology Outlines the fundamentals, methods, toxicity aspects, and other relevant aspects for nanotechnology based applications in dermatology Coherently structured book written by experts working in the fields covered

Retina E-Book

Nanoformulation Strategies for Cancer Treatment provides an up-to-date review on current developments and regulatory and clinical challenges in the field of nanopharmaceuticals and the effective treatment of diverse varieties of cancer. This important reference source is ideal for biomaterials scientists and pharmaceutical scientists working in the area of cancer diagnosis and therapy. Due to the high cost of traditional cancer treatment types, researchers have increasingly looked for new ways to augment the therapeutic performance of existing drug candidates. The use of nanotechnology-based approaches have gained significant momentum, thus leading to the launch of a series of new drug products. As nanopharmaceuticals improve the therapeutic performance of cancer therapy drugs, but also provide opportunities for site-specific drug targeting in tumors, this work is a welcomed resource on the topics discussed. Highlights the application of nanoformulations, including liposomes, nanoparticles and nanobiomaterials for targeted drug delivery to cancer cells Explores recent advances made using novel nanoformulations containing herbal drugs and biotechnology based therapeutic strategies for cancer treatment Assesses the regulatory hurdles that are necessary for the successful clinical translation of nanomedicines from the laboratory into the market

Nanomaterials for Drug Delivery and Therapy

Drug discovery for ocular diseases has taken great strides in the last two decades. From cornea to choroid, new drugs have been formulated to address a great variety of ocular diseases. Yet without good drug delivery systems, these drugs are less effective than they might be or could even cause serious side effects. Ocular Drug Delivery Systems: Barriers and Application of Nanoparticulate Systems presents research on the development of currently marketed devices and recent

trends in the topical delivery of drugs to the posterior of the eye. With contributions from leading pharmaceutical researchers and industry experts, eye researchers, surgeons, pharmacologists from academia, the National Eye Institute, and leading ophthalmic companies such as Pfizer, Allergan, and Novartis, the book presents the state of the art in the use of nanoparticles in ocular drug delivery systems and also sets the stage for future developments. This volume provides both a current evaluation and a future roadmap for developments in ocular drug delivery. The subjects range from biological needs to material challenges and finally to clinical applications for improving drug delivery for conditions where treatments already exist. It also explores areas where effective drugs may be currently available but yet need a safe, efficient, and efficacious delivery vehicle.

Nanomedicine in Drug Delivery

A multidisciplinary approach is increasingly being adapted by the Pharmaceutical industry to tackle several challenges in developing efficacious treatment solutions. The field of Ophthalmology is no less different. Treatise on Ocular Drug Delivery is a unique collection of information put together by various experts in the field. One of the major goals behind this volume is to link clinical information with the current strategies employed in ocular drug delivery. This monograph covers a range of topics on ocular pharmacology. Chapters in the e-book cover several aspects of drug delivery research such as the biochemical background of specific eye diseases, challenges for ocular drug delivery, the role of influx and efflux transporters, novel drug delivery systems, pharmacokinetics, regulatory aspects, and patenting opportunities for researchers. This E-Book would serve as a suitable reference for pharmacy graduates, medical students, professional scientists and ophthalmic clinicians in academic and industrial laboratories.

Ophthalmic Drug Delivery Systems

Overcoming biological barriers is of importance for solving the problems of many current drugs and vaccines, and is especially relevant in the commerical exploitation of new therapeutic strategies. This book focuses on the mechanistic issues related to the interaction between drug delivery systems and biological barriers.

Pharmaceutical Particulate Carriers

Theory and Applications of Nonparenteral Nanomedicines presents thoroughly analysed data and results regarding the potential of nanomedicines conceived by diverse non-parenteral routes. In the context of nanotechnology-based approaches, various routes such as oral, pulmonary, transdermal, delivery and local administration of nanomedicine have been utilized for the delivery of nanomedicine. This book discusses the non-parenteral application of nanomedicine, its

regulatory implications, application of mucus penetrating nanocarrier, and detailed chapters on development of nanomedicines developed for drug delivery by various route. Beginning with a brief introduction to the non-parenteral delivery of nanomedicine and the safety and regulatory implications of the nanoformulations, further chapters discuss the physiology of the biological barriers, the specificity of the nanocarriers as well as their multiple applications. Theory and Applications of Nonparenteral Nanomedicines helps clinical researchers, researchers working in pharmaceutical industries, graduate students, and anyone working in the development of non-parenteral nanomedicines to understand the recent progress in the design and development of nanoformulations compatible with non-parenteral applications. Contains a comprehensive review of non-parenteral nanomedicines Provides analysis of non-parenteral methods of nanomedicines including regulatory implications and future applications Explores a wide range of promising approaches for non-parenteral drug delivery using the latest advancement in nanomedicine written by experts in industry and academia

Engineering of Nanobiomaterials

This unique book is the only one to discuss various new techniques developed to enhance the application of nanoparticulate drug delivery systems using surface modification of nanoparticles. The understanding of the surface characteristics nano-particles is growing significantly with the advent of new analytical techniques. Polymer chemistry is contributing to the development of many new versatile polymers which have abilities to accommodate many different, very reactive chemical groups, and can be used as a diagnostic tool, for better targeting, for more effective therapeutic results as well as for reducing the toxic and side effects of the drugs. Surface modification of such polymeric nanoparticles has been found by many scientists to enhance the application of nanoparticles and also allows the nano particles to carry specific drug molecule and disease /tumor specific antibodies which refine and improve drug delivery. Surface Modification of Nanoparticles for Targeted Drug Delivery is a collection essential information with various applications of surface modification of nanoparticles and their disease specific applications for therapeutic purposes.

Theory and Applications of Nonparenteral Nanomedicines

This new volume, Nanomedicine for the Treatment of Disease: From Concept to Application, looks at the application of nanomedicines with a particular focus on their use in the treatment of diseases. The chapters in this volume, contributed by eminent scientists, researchers, and nanotechnologists from across the globe, highlight key advancements, challenges, and opportunities in the area of application of nanomedicines for disease treatment. They explore the design and development of therapeutic nanocarriers for targeting drugs for satiating the demands of disease treatment process. The volume explores the use nanomedicines for the diagnosis and treatment of a multitude various diseases and health conditions, including respiratory diseases, neurological disorders, genetic diseases, pulmonary fungal infections, neuroAIDS,

cardiovascular disorders, gastric and colonic diseases, skin disorders, cancer, brain tumors, leishmaniasis and other visceral diseases, hypertension, and ocular diseases.

Nanoformulation Strategies for Cancer Treatment

The second edition of this text assembles significant ophthalmic advances and encompasses breakthroughs in gene therapy, ocular microdialysis, vitreous drug disposition modelling, and receptor/transporter targeted drug delivery.

Treatise on Ocular Drug Delivery

Offers a comprehensive overview of the medical applications of pharmaceutical particulate carriers, discussing the various routes of administration and controlled delivery of sites of action. Intravenous liposomal therapy for retroviral infections, especially AIDS, is discussed.

Organic Materials as Smart Nanocarriers for Drug Delivery

Emerging Nanotechnologies for Diagnostics, Drug Delivery and Medical Devices covers the modern micro and nanotechnologies used for diagnosis, drug delivery, and theranostics using micro, nano, and implantable systems. In-depth coverage of all aspects of disease treatment is included. In addition, the book covers cutting-edge research and technology that will help readers gain knowledge of novel approaches and their applications to improve drug/agent specificity for diagnosis and efficient disease treatment. It is a comprehensive guide for medical specialists, the pharmaceutical-industry, and academic researchers discussing the impact of nanotechnology on diagnosis, drug delivery, and theranostics. Gives readers working in immunology, drug delivery, and medicine a greater awareness on how novel nanotechnology orientated methods can help improve treatment Provides readers with backgrounds in nanotechnology, chemistry, and materials science an understanding on how nanotechnology is used in immunology and drug delivery Includes focused coverage of the use of nanodevices in diagnostics, therapeutics, and theranostics not offered by other books

Nanoscience in Dermatology

Retinal Pharmacotherapy is the first comprehensive book devoted to pharmacologic agents and their rationale and mechanisms of action in selected retinal and uveitic diseases. Drs. Quan Dong Nguyen, Eduardo Buchele Rodrigues, Michel Eid Farah, and William F. Mieler lead an international team of expert contributors to present up-to-date knowledge of new drugs on the market, the science behind the drugs, evidence of how the drugs work, and the reasons why they are effective

or not. This user-friendly, all-in-one reference provides you with easy access to practical information on the effective and appropriate use of pharmacologic agents in the management of retinal diseases. Covers all new and existing retinal drugs to keep you current in this expanding area of the treatment of retinal diseases. Discusses the background behind retinal drugs and the various pathways of how they work so you can make thoroughly informed clinical decisions. Presents 400 color photographs and line drawings that illustrate disease appearance before and after treatment and clarify difficult key concepts. Features contributors from Europe, North America, South America, the Middle East, Asia, and Australia for an international approach. Identifies and emphasizes key points clearly in each chapter to improve comprehension and make finding information easier.

Nanoengineered Biomaterials for Advanced Drug Delivery

Nanotechnology Methods for Neurological Diseases and Brain Tumors: Drug Delivery across the Blood-Brain Barrier compiles the latest (and future potential) treatment strategies for brain tumors and neurological diseases, in particular Alzheimer’s, Parkinson’s and stroke, those that bypass the blood/brain barrier. The current understanding of brain drug delivery and access is discussed in Chapter One, with the next section focusing on the implementation of the nose-to-brain intranasal route in brain-targeted drug delivery. In addition, nanotechnology-based brain drug delivery is covered in Chapter Three. This avenue offers impressive improvement in the treatment of neurological diseases and brain tumors by using bio-engineered systems that interact with biological systems at a molecular level. In Chapter Four, emphasis is placed on the need for brain-targeted experimental models that mimic disease conditions. Final chapters discuss the very latest advances in targeted treatment strategies for neurological diseases and brain tumors. Comprehensive guide for up-to-date views on the latest advances in targeted treatment strategies for brain tumors and neurological diseases Designed with a multidisciplinary approach that links neurology, neuro-oncology and nanoscience to drug delivery to the brain with an emphasis on the blood-brain-barrier Written in a language that makes it easy to understand nanotechnology drug delivery techniques Presents a unique book that also covers advanced treatment approaches of neurological diseases and brain tumors

Drug Delivery Nanosystems

This consolidated reference book addresses the various aspects of nano biomaterials used in ophthalmic drug delivery, including their characterization, interactions with ophthalmic system and applications in treatments of the ophthalmic diseases and disorders. In the last decade, a significant growth in polymer sciences, nanotechnology and biotechnology has resulted in the development of new nano- and bioengineered nano-bio-materials. These are extensively explored as drug delivery carriers as well as for implantable devices and scaffolds. At the interface between nanomaterials and biological

systems, the organic and synthetic worlds merge into a new science concerned with the safe use of nanotechnology and nano material design for biological applications. For this field to evolve, there is a need to understand the dynamic forces and molecular components that shape these interactions. While it is impossible to describe with certainty all the bio physicochemical interactions at play at the interface, we are at a point where the pockets of assembled knowledge are providing a conceptual framework to guide this exploration, and review the impact on future product development. The book is intended as a valuable resource for academics and pharmaceutical scientists working in the field of polymers, polymers materials for drug delivery, drug delivery systems and ophthalmic drug delivery systems, in addition to medical and health care professionals in these areas.

Drug Targeting and Stimuli Sensitive Drug Delivery Systems

Drug Delivery is the latest and most up-to-date text on drug delivery and offers an excellent working foundation for students and clinicians in health professions and graduate students including nursing, pharmacy, medicine, dentistry, as well as researchers and scientists. Presenting this complex content in an organized and concise format, Drug Delivery allows students to gain a strong understanding of the key concepts of drug delivery.This text focuses on the basic concepts of drug delivery while thoroughly examining various topics such as: CNS delivery Gene delivery Ocular delivery World-wide research on drug delivery Recent advances in drug deliveryA significant advancement has been made in the field of drug delivery. This text provides a detailed overview of drug delivery systems, routes of drug administration and development of various formulations. The cutting edge research being carried out in this field will be compiled and a focus on worldwide research on drug delivery and targeting at the molecular, cellular, and organ levels will also be summarized.Each new print copy includes access to the Navigate Companion Website including: Chapter Quizzes, Interactive Glossary, Crossword Puzzles , Interactive Flashcards, and Matching Exercises

Drug Delivery Aspects

Nanoengineered Biomaterials for Advanced Drug Delivery explores the latest advances in the applications of nanoengineered biomaterials in drug delivery systems. The book covers a wide range of biomaterials and nanotechnology techniques that have been used for the delivery of different biological molecules and drugs in the human body. It is an important resource for biomaterials scientists and engineers working in biomedicine and those wanting to learn more on how nanoengineered biomaterials are being used to enhance drug delivery for a variety of diseases. Nanoengineered biomaterials have enhanced properties that make them more effective than conventional biomaterials as both drug delivery agents, and in the creation of new drug delivery systems. As nanoengineering becomes more cost-effective, nanoengineered biomaterials have become more widely used within biomedicine. Offers an informed overview on how

nanoengineering biomaterials enhance their properties for drug delivery applications Discusses the major applications of nanoengineered biomaterials for drug delivery Outlines the major challenges for successfully implementing nanoengineered biomaterials into existing drug delivery systems

Stimuli Responsive Polymeric Nanocarriers for Drug Delivery Applications

Engineering of Nanobiomaterials presents the most recent information regarding the specific modifications of nanomaterials and of their synthesis methods, in order to obtain particular structures for different biomedical purposes. This book enables the results of current research to reach those who wish to use this knowledge in an applied setting. Engineered nanobiomaterials, designed from organic or inorganic raw materials, offer promising alternatives in many biomedical applications. In this book, eminent researchers from around the world discuss the various applications, including antibacterial therapy, biosensors, cancer therapy, stimuli-responsive drug release, drug delivery, gene therapy and visual prostheses. In each case, advantages, drawbacks and future potential are outlined. This book will be of interest to students, postdoctoral researchers and professors engaged in the fields of materials science, biotechnology and applied chemistry. It will also be highly valuable to those working in industry, including pharmaceutics and biotechnology companies, medical researchers, biomedical engineers and advanced clinicians. An up-to-date and highly structured reference source for students, researchers and practitioners working in biomedical, biotechnological and engineering fields A valuable guide to recent scientific progress, covering major and emerging applications of nanomaterials in the biomedical field Proposes novel opportunities and ideas for developing or improving engineering technologies in nanomedicine/nanobiology

Application of Nanotechnology in Drug Delivery

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 stems 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

Surface Modification of Nanoparticles for Targeted Drug Delivery

Drug Targeting and Stimuli Sensitive Drug Delivery Systems covers recent advances in the area of stimuli sensitive drug delivery systems, providing an up-to-date overview of the physical, chemical, biological and multistimuli-responsive nanosystems. In addition, the book presents an analysis of clinical status for different types of nanoplatforms. Written by an internationally diverse group of researchers, it is an important reference resource for both biomaterials scientists and those working in the pharmaceutical industry who are looking to help create more effective drug delivery systems. Shows how the use of nanomaterials can help target a drug to specific tissues and cells Explores the development of stimuli-responsive drug delivery systems Includes case studies to showcase how stimuli responsive nanosystems are used in a variety of therapies, including camptothecin delivery, diabetes and cancer therapy

Drug Delivery

The concept of focal controlled drug delivery has been applied for treating illnesses that are localized to a certain tissue or organ. These delivery systems are applied directly to the diseased site and deliver a desired dose for an extended time period while minimizing systemic distribution of toxic drug. Controlled drug delivery systems have been focused on oral extended release formulations and on systemic delivery of small drugs and peptides. Despite the upsurge of interest in focal targeted drug delivery, there is currently no single reference text on the subject. By comparison, there are numerous authored and edited books on oral, systemic and transdermal drug delivery or books on biodegradable polymers as drug carriers. Thus, the aim of Focal Drug Delivery is to bring together leading experts and researchers in the field to provide an authoritative account of the essential pharmaceutical, technological, physiological and biological sciences underpinning the topic. In addition, the book will review advances in treatment options for diseases localized at a certain tissue or organ.

Emerging Nanotechnologies in Immunology

There is a clear need for innovative technologies to improve the delivery of therapeutic and diagnostic agents in the body. Recent breakthroughs in nanomedicine are now making it possible to deliver drugs and therapeutic proteins to local areas of disease or tumors to maximize clinical benefit while limiting unwanted side effects. Nanomedicine in Drug Delivery gives

an overview of aspects of nanomedicine to help readers design and develop novel drug delivery systems and devices that build on nanoscale technologies. Featuring contributions by leading researchers from around the world, the book examines: The integration of nanoparticles with therapeutic agents The synthesis and characterization of nanoencapsulated drug particles Targeted pulmonary nanomedicine delivery using inhalation aerosols The use of biological systems—bacteria, cells, viruses, and virus-like particles—as carriers to deliver nanoparticles Nanodermatology and the role of nanotechnology in the diagnosis and treatment of skin disease Nanoparticles for the delivery of small molecules, such as for gene and vaccine delivery The use of nanotechnologies to modulate and modify wound healing Nanoparticles in bioimaging, including magnetic resonance, computed tomography, and molecular imaging Nanoparticles to enhance the efficiency of existing anticancer drugs The development of nanoparticle formulations Nanoparticles for ocular drug delivery Nanoparticle toxicity, including routes of exposure and mechanisms of toxicity The use of animal and cellular models in nanoparticles safety studies With its practical focus on the design, synthesis, and application of nanomedicine in drug delivery, this book is a valuable resource for clinical researchers and anyone working to tackle the challenges of delivering drugs in a more targeted and efficient manner. It explores a wide range of promising approaches for the diagnosis and treatment of diseases using cutting-edge nanotechnologies.

Focal Controlled Drug Delivery

Nanomaterials for Drug Delivery and Therapy presents recent advances in the field of nanobiomaterials and their important applications in drug delivery, therapy and engineering. The book offers pharmaceutical perspectives, exploring the development of nanobiomaterials and their interaction with the human body. Chapters show how nanomaterials are used in treatments, including neurology, dentistry and cancer therapy. Authored by a range of contributors from global institutions, this book offers a broad, international perspective on how nanotechnology-based advances are leading to novel drug delivery and treatment solutions. It is a valuable research resource that will help both practicing medics and researchers in pharmaceutical science and nanomedicine learn more on how nanotechnology is improving treatments. Assesses the opportunities and challenges of nanotechnology-based drug delivery systems Explores how nanotechnology is being used to create more efficient drug delivery systems Discusses which nanomaterials make the best drug carriers

Nano-Biomaterials For Ophthalmic Drug Delivery

Emerging Nanotechnologies in Immunology: The Design, Applications and Toxicology of Nanopharmaceuticals and Nanovaccines aims to deliver a systematic and comprehensive review of data concerning the nature of interaction and nano-related risks between the nanopharmaceuticals currently in the pipeline of S&T development for skin, ocular and nasal drug delivery, including absorption, toxicity, and the ability to distribute after systemic exposure. The book's contributors

address a representative set of the broad spectrum of nanopharmaceutics presently being used, including cationic lipid nanoparticles, polymeric PLGA, PLA nanoparticles, biomacromolecules-based nanoparticles, and other scaffolds tissue-engineered skin substitutes. In addition, regulation and risk are also covered since the safety of these nanopharmaceuticals still represents a barrier to their wide and innovative use. Provides a thorough knowledge of the safety aspects of nanopharmaceuticals currently under research Focuses on the characterization and quantification of nanopharmaceutics to allow readers to understand the correlation between the nature of the materials and their potential nanotoxicological effects Includes a thorough overview of legal and regulatory aspects and a discussion of the ethical issues related to the R&D of nanopharmaceuticals

Emerging Nanotechnologies for Diagnostics, Drug Delivery and Medical Devices

Nanoengineered Biomaterials for Regenerative Medicine showcases the advances that have taken place in recent years as an increasing number of nanoengineered biomaterials have been targeted to various organ tissues. The book systematically explores how nanoengineered biomaterials are used in different aspects of regenerative medicine, including bone regeneration, brain tissue reconstruction and kidney repair. It is a valuable reference resource for scientists working in biomaterials science who want to learn more about how nanoengineered materials are practically applied in regenerative medicine. Nanoengineered biomaterials have gained particular focus due to their many advantages over conventional techniques for tissue repair. As a wide range of biomaterials and nanotechnology techniques have been examined for the regeneration of tissues, this book highlights the discussions and advancements made. Provides a digestible reference source for surgeons and physicians who want to learn more on nanoengineered biomaterials and their use in effective medical treatments Offers systematic coverage on how nanoengineered biomaterials are used for different types of medicine Assesses the benefits and drawbacks of the use of bioengineered nanomaterials in different areas of regenerative medicine

Nanoarchitectonics for Smart Delivery and Drug Targeting

Lipid Nanocarriers for Drug Targeting presents recent advances in the area of lipid nanocarriers. The book focuses on cationic lipid nanocarriers, solid lipid nanocarriers, liposomes, thermosensitive vesicles, and cubosomes, with applications in phototherapy, cosmetic and others. As the first book related to lipid nanocarriers and their direct implication in pharmaceutical nanotechnology, this important reference resource is ideal for biomaterials scientists and those working in the medical and pharmaceutical industries that want to learn more on how lipids can be used to create more effective drug delivery systems. Highlights the most commonly used types of lipid nanocarriers and explains how they are applied in pharmacy Shows how lipid nanocarriers are used in different types of treatment, including oral medicine, skin repair and

cancer treatment Assesses the pros and cons of using different lipid nanocarriers for different therapies

Nanoarchitectonics in Biomedicine

This book collects reviews and original articles from eminent experts working in the interdisciplinary arena of nanotechnology use in drug delivery. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of nanotechnology application of drug delivery. 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 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.

Treatise on Ocular Drug Delivery

Design of Nanostructures for Versatile Therapeutic Applications focuses on antimicrobial, antioxidant and nutraceutical applications of nanostructured materials. Many books discuss these subjects, but not from a pharmaceutical point-of-view. This book covers novel approaches related to the modulation of microbial biofilms, antimicrobial therapy and encapsulate polyphenols as antioxidants. Written by an internationally diverse group of academics, this book is an important reference resource for researchers, both in biomaterials science and the pharmaceutical industry. Assesses the most recently developed nanostructures that have potential antimicrobial properties, explaining their novel mechanical aspects Shows how nanoantibiotics can be used to more effectively treat disease Provides a cogent summary of recent developments in nanoantimicrobial discovery, allowing readers to quickly familiarize themselves with the topic

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