

Novel Drug Delivery System By Nk Jain

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.

With the improvements in formulation science and certain transdermal delivery technologies, the non-invasive mode of drug delivery is now ready to compete with traditional methods of oral and injectible routes of drug delivery. The Handbook of Non-Invasive Drug Delivery Systems encompasses the broad field of non-invasive drug delivery systems that include drug delivery via topical, transdermal-passive, transdermal-active (device- aided enhanced penetration), trans-mucosal membrane, trans-ocular membrane as well as delivery via alveolar membrane from inhaled medication. Patient compliance has been found to be much higher when administrated by non-invasive routes and therefore they are considered to be a preferred mode of drug delivery. The book includes both science and technological aspects of new drug delivery systems. Its unique focus is that it is on new drug delivery systems that are considered to be "non-

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invasive". Other unique features include a chapter on Regulatory Aspects of non-invasive systems and one on FDA guidance for topical nano-drug delivery. Two chapters covering market trends and perspectives, as well as providing guidance to those marketing such systems are also included.

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,

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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

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

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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 Devices and Therapeutic Systems examines the current technology and innovations moving drug delivery systems (DDS) forward. The book provides an overview on the therapeutic use of drug delivery devices, including design, applications, and a description of the design of each device. While other books focus on the therapy, the primary emphasis in this book is on current technologies for DDS applications, including microfluidics,

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nanotechnology, biodegradable hydrogel and microneedles, with a special emphasis on wearable DDS. As part of the Developments in Biomedical Engineering and Bioelectronics series, this book is written by experts in the field and informed with information directly from manufacturers. Pharmaceutical scientists, medical researchers, biomedical engineers and clinical professionals will find this an essential reference. Provides essential information on the most recent drug delivery systems available Explains current technology and its applications to drug delivery Contains contributions from biomedical engineers, pharmaceutical scientists and manufacturers

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

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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, microspheres, transferosomes, and ethosomes. Some chapters are especially focused on anticancer phytodrugs, silymarin, andrographolide, berberine, and curcumin delivery with special emphasis on their application. 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.

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

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To facilitate the development of novel drug delivery systems and biotechnology-oriented drugs, the need for new excipients to be developed and approved continues to increase. Excipient Development for Pharmaceutical, Biotechnology, and Drug Delivery Systems serves as a comprehensive source to improve understanding of excipients and forge new avenue. A suitable drug delivery system is an essential element in achieving efficient therapeutic responses of drug molecules. With this desirability in mind, the book unites different techniques through which extremely small-sized particles can be utilized as a successful carrier for curing chronic as well as life-threatening diseased conditions. This is a highly informative and prudently organized book, providing scientific insight for readers with an interest in nanotechnology. Beginning with an overview of nanocarriers, the book impetuses on to explore other essential ways through which these carriers can be employed for drug delivery to varieties of administrative routes. This book discusses the functional and significant features of nanotechnology in terms of Lymphatic and other drug targeting deliveries. The book is presenting depth acquaintance for various vesicular and particulate nano-drug delivery carriers, utilized successfully in Pharmaceutical as well as in Cosmeceutical industries along with brief information on their related toxicities. In addition, the work also explores the potential applications of nanocarriers in biotechnology sciences for the prompt and safe delivery of nucleic acid, protein, and peptide-based drugs. An exclusive section in the book illuminates the prominence and competent applicability of nanotechnology in the treatment of oral cancer. The persistence of this book is to provide basic to advanced information for different novel carriers which are under scale-up consideration for the extensive commercialization. The book also includes recent discoveries and the latest patents of such nanocarriers. The cutting-edge

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evidence of these nanocarriers available in this book is beneficial to students, research scholars, and fellows for promoting their advanced research.

The book provides a single volume covering detailed descriptions about various delivery systems, their principles and how these are put in use for the treatment of multiple diseases. It is divided into four sections where the first section deals with the introduction and importance of novel drug delivery system. The second section deals with the most advanced drug delivery systems like microbubbles, dendrimers, lipid-based nanoparticles, nanofibers, microemulsions etc., describing the major principles and techniques of the preparations of the drug delivery systems. The third section elaborates on the treatments of diverse diseases like cancer, topical diseases, tuberculosis etc. The fourth and final section provides a brief informative description about the regulatory aspects of novel drug delivery system that is followed in various countries. 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

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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

Provides a review of novel pharmaceutical approaches for Tuberculosis drugs Presents a novel perspective on tuberculosis prevention and treatment Considers the nature of disease, immunological responses, vaccine and drug delivery, disposition and response

Multidisciplinary appeal, with contributions from microbiology, immunology, molecular biology, pharmaceuticals, pharmacokinetics, chemical and mechanical engineering

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

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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.

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

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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

Providing optimal care to patients is a primary concern in the healthcare field. By utilizing the latest resources and research in biomedical applications, the needs and expectations of patients can be successfully exceeded. *Novel Approaches for Drug Delivery* is an authoritative reference source for the latest scholarly research on emerging developments within the pharmaceutical industry, examining the current state and future directions of drug delivery systems. Highlighting therapeutic applications, predictive toxicology, and risk assessment perspectives, this book is ideally designed for medical practitioners, pharmacists, graduate-level students, scientists, and researchers.

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.

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Its aim is to provide an overview of many of the areas where CRVDDS 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.

The goal of any novel drug delivery system is to provide therapeutic benefits to the patients by increasing duration of drug action, reducing dosing frequency, and controlling drug release rate at the target site, thereby reducing unwanted side effects.

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Advanced Technology for Delivering Therapeutics is a reference book that covers recent developments in the field of drug delivery science and technology. The purpose of this book is to bring together descriptions of some selective technologies including new and promising nanotechnology currently being investigated for drug delivery applications. This book is a useful source of information for graduate and post-graduate students of pharmacy and biomedical science; pharmaceutical

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.

Targeted towards undergraduate and postgraduate students, the purpose of this textbook is to introduce pharmacy students to the basic systems of pharmaceutical principles and technologies applied in the preparation of various novel drug delivery

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systems. It also provides an in-depth introduction to the regulatory agencies and Current Good Manufacturing Practices (CGMP). This book caters to anyone who is interested in the subject or working in the industry, clinicians and research scholars. It is written in simple, lucid style with easily-understandable language so that it is useful for self study. The illustrations and tables provide a clear understanding of the concepts. 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 vivo animal and human studies. The book includes laboratory, clinical and commercial case studies

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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. Long-Acting Drug Delivery Systems: Pharmaceutical, Clinical, and Regulatory Aspects offers a comprehensive overview of the technical, clinical, regulatory and industrial perspectives on these drug delivery systems. The book follows a sequential order, beginning with the current technical state-of-the-field and moving on to more clinical, industrial and regulatory topics. Opening chapters describe the current needs and potential applications of implantable and long-acting therapeutic approaches. The book goes on to describe established and novel long-acting systems, with a focus on the materials used to prepare these systems and their biocompatibility. Importantly, applied topics such as scale-up manufacturing, products under clinical trials and regulatory aspects are covered, offering the reader a holistic view of this rapidly growing field. Brings together technical, clinical, regulatory and industrial perspectives for a complete overview of long acting and implantable drug delivery systems Provides up-to-date coverage of established and novel long-acting and implantable drug delivery systems, both in development and actively in use Appeals to a broad readership, including materials scientists, pharmaceutical scientists, biomedical engineers, clinicians and regulatory experts

This is a useful textbook and resource for undergraduate and postgraduate students

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and anyone in the working concepts of a drug delivery system and its performance. A novel drug delivery system refers to strategy, technology, formulation-based approaches and customized system(s) developed for safe administration and within body transportation of drugs as needed for optimum therapeutic benefits while ensuring minimum to nil toxic effects. Multidisciplinary approaches and cutting edge technology have been used to develop the carrier modules to deliver the contained drug to the target tissues in a preprogrammed manner. The process desirably modifies the drug distribution and accumulation, thereby producing optimum therapeutic effects. Carrier-mediated drug delivery has emerged as a powerful technology for the treatment of various difficult pathologies. The therapeutic index of conventional and novel drug is enhanced owing to specificity due to targeting of drug to the particular tissue. This book includes an introduction to novel drug delivery, oral osmotic pumps, bioadhesive and mucoadhesive systems, multiple emulsions, colon-specific drug delivery systems, transdermal drug delivery systems, spherical crystallization, microemulsion, implants and inserts, micellar systems, liposomes, microspheres and microcapsules, nanoparticles, resealed erythrocytes, transfersomes and ethosomes, organogels, dendrimers, niosomes, solid lipid nanoparticles, drug conjugates, cyclodextrin complexes, multifunctional nanomedicines, and floating drug delivery system(s). Each chapter attempts to discuss introduction, concept, progress, status and future prospects of the concerned novel drug delivery system.

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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.

Provides both fundamentals and new and emerging applications Advanced Drug Delivery brings readers fully up to date with the state of the science, presenting the basics, formulation strategies, and therapeutic applications of advanced drug

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delivery. The book demonstrates how core concepts of pharmaceutical sciences, chemistry, and molecular biology can be combined and applied in order to spark novel ideas to design and develop advanced drug delivery systems for the treatment of a broad range of human diseases. *Advanced Drug Delivery* features contributions from an international team of pharmaceutical scientists. Chapters reflect a thorough review and analysis of the literature as well as the authors' firsthand experience developing drug delivery systems. The book is divided into four parts: Part I, Introduction and Basics of Advanced Drug Delivery, explores physiological barriers, stability, transporters, and biomaterials in drug delivery; Part II, Strategies for Advanced Drug Delivery, offers tested and proven strategies for advanced delivery of both small molecules and macromolecules; Part III, Translational Research of Advanced Drug Delivery, focuses on regulatory considerations and translational applications of advanced drug delivery systems for the treatment of cardiovascular diseases, cancer, sexually transmitted diseases, ophthalmic diseases, and brain diseases; Part IV, Future Applications of Advanced Drug Delivery in Emerging Research Areas, examines stem cell research, cell-based therapeutics, tissue engineering, and molecular imaging. Each chapter provides objectives and assessment questions to help readers grasp key concepts and assess their knowledge as they progress through the book. *Advanced Drug Delivery* is recommended for graduates and upper-level undergraduates in the pharmaceutical sciences who need a solid foundation in the basics. It is also

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recommended for pharmaceutical professionals who want to take advantage of new and emerging applications in advanced drug delivery systems. Cost-effective strategies for designing novel drug delivery systems that target a broad range of disease conditions In vivo imaging has become an important tool for the development of new drug delivery systems, shedding new light on the pharmacokinetics, biodistribution, bioavailability, local concentration, and clearance of drug substances for the treatment of human disease, most notably cancer. Written by a team of international experts, this book examines the use of quantitative imaging techniques in designing and evaluating novel drug delivery systems and applications. Drug Delivery Applications of Noninvasive Imaging offers a full arsenal of tested and proven methods, practices and guidance, enabling readers to overcome the many challenges in creating successful new drug delivery systems. The book begins with an introduction to molecular imaging. Next, it covers: In vivo imaging techniques and quantitative analysis Imaging drugs and drug carriers at the site of action, including low-molecular weight radiopharmaceuticals, peptides and proteins, siRNA, cells, and nanoparticles Applications of imaging techniques in administration routes other than intravenous injection, such as pulmonary and oral delivery Translational research leading to clinical applications Imaging drug delivery in large animal models Clinical applications of imaging techniques to guide drug development and drug delivery Chapters are based on a thorough review of the current literature as well as the authors'

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firsthand experience working with imaging techniques for the development of novel drug delivery systems. Presenting state-of-the-technology applications of imaging in preclinical and clinical evaluation of drug delivery systems, Drug Delivery Applications of Noninvasive Imaging offers cost-effective strategies to pharmaceutical researchers and students for developing drug delivery systems that accurately target a broad range of disease conditions.

Drug Delivery Systems examines the current state of the field within pharmaceutical science and concisely explains the history of drug delivery systems, including key developments. The book translates the physicochemical properties of drugs into drug delivery systems administered via various routes, such as oral, parenteral, transdermal and inhalational. Regulatory and product development topics are also explored. Written by experts in the field, this volume in the Advances in Pharmaceutical Product Development and Research series deepens our understanding of drug delivery systems within the pharmaceutical sciences industry and research, as well as in chemical engineering. Each chapter delves into a particular aspect of this fundamental field to cover the principles, methodologies and technologies employed by pharmaceutical scientists. This book provides a comprehensive examination that is suitable for researchers and advanced students working in pharmaceuticals, cosmetics, biotechnologies, and related industries. Provides up-to-date information on how to translate the physicochemical properties of drugs into drug delivery systems Explores

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how drugs are administered via various routes, such as oral, parenteral, transdermal and inhalational Contains extensive references and further reading for course and self-study

Focusing on nanoparticulate nanocarriers and recent advances in the field of drug delivery, the volume begins with chapters that provide an informative introduction to polymeric nanoparticles—their general physicochemical features and characteristics, their applications in drug delivery systems, and the challenges involved. Specific applications are discussed, with attention paid to treatment of particular diseases and disorders and the targeting of specific organs. Part 2 looks at more specific applications and techniques of nanoparticulate nanocarriers for drug delivery, such as the use of magnetic nanoparticles, gold nanoparticles in therapeutics, and superparamagnetic iron oxide nanoparticles (SPIONs) for the treatment of cancer. Part 3 discusses lipid-based nanoparticulates for various applications, including skin care. The last section of the book explores some of the newer nanoarchitectures, including dendrimers in gene delivery and carbon nanotubes for drug delivery. Together, the insightful research presented here provides valuable information for those involved in this area, including scientists and researchers and faculty and upper-level students, as well as for industry professionals.

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

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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.

Drug delivery technologies modify drug release profile, absorption, distribution and elimination for the benefit of improving product efficacy and safety, as well as patient convenience and compliance. Drug release is from: diffusion, degradation, swelling, and affinity-based mechanisms. 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: Controlled drug delivery systems-Introduction; Polymers; Microencapsulation; Mucosal Drug Delivery system; Implantable Drug Delivery Systems; Transdermal Drug Delivery Systems; and Gastro retentive drug delivery systems. This book gives guidance on how to approach modifications of biopolymers for drug delivery systems and materials for implants. It also describes structure-properties relationships in proposed excipients, drug delivery systems and biomedical materials.

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March 19-21, 2018 | Berlin, Germany Key Topics : Drug Targeting and Design, Drug Delivery Technologies, Nanoparticulate Drug Delivery Systems, Pharmaceutical Nanotechnology, Nanomedicine and Nanotechnology, Smart Drug Delivery Systems, Biomaterials in Drug Delivery, Vaccine Drug Delivery Systems, Medical Devices for Drug Delivery, Peptides and Protein Drug Delivery, Green & Sustainable Pharma, 2D & 3D Printing in Drug Delivery, Pre-Formulation & Formulation Aspects, Pharmacokinetics and Pharmacodynamics in drugs, Routes of Drug Delivery, Nanotechnology in Drug Delivery, Global Drug Delivery Policy, Biomedicine and Pharmacotherapy,

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.

Advanced Drug Delivery Systems in the Management of Cancer discusses recent developments in nanomedicine and nano-based drug delivery systems used in the treatment of cancers affecting the blood, lungs, brain, and kidneys. The research presented in this book includes international collaborations in the area of novel drug delivery for the treatment of

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cancer. Cancer therapy remains one of the greatest challenges in modern medicine, as successful treatment requires the elimination of malignant cells that are closely related to normal cells within the body. Advanced drug delivery systems are carriers for a wide range of pharmacotherapies used in many applications, including cancer treatment. The use of such carrier systems in cancer treatment is growing rapidly as they help overcome the limitations associated with conventional drug delivery systems. Some of the conventional limitations that these advanced drug delivery systems help overcome include nonspecific targeting, systemic toxicity, poor oral bioavailability, reduced efficacy, and low therapeutic index. This book begins with a brief introduction to cancer biology. This is followed by an overview of the current landscape in pharmacotherapy for the cancer management. The need for advanced drug delivery systems in oncology and cancer treatment is established, and the systems that can be used for several specific cancers are discussed. Several chapters of the book are devoted to discussing the latest technologies and advances in nanotechnology. These include practical solutions on how to design a more effective nanocarrier for the drugs used in cancer therapeutics. Each chapter is written with the goal of informing readers about the latest advancements in drug delivery system technologies while reinforcing understanding through various detailed tables, figures, and illustrations. Advanced Drug Delivery Systems in the Management of Cancer is a valuable resource for anyone working in the fields of cancer biology and drug delivery, whether in academia, research, or industry. The book will be especially useful for researchers in drug formulation and drug delivery as well as for biological and translational researchers working in the field of cancer. Presents an overview of the recent perspectives and challenges within the management and diagnosis of cancer Provides insights

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into how advanced drug delivery systems can effectively be used in the management of a wide range of cancers Includes up-to-date information on diagnostic methods and treatment strategies using controlled drug delivery systems

In this concise and systematic book, a team of experts select the most important, cutting-edge technologies used in drug delivery systems. They take into account significant drugs, new technologies such as nanoparticles, and therapeutic applications. The chapters present step-by-step laboratory protocols following the highly successful Methods in Molecular Biology™ series format, offering readily reproducible results vital for pharmaceutical physicians and scientists.

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