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Optimization of Aerosol Drug Delivery Pharmaceutical Aerosol Drug Delivery Aerosol Drug Delivery Device Design Verification. Requirements and Test Methods Drug Delivery to the Lung The Mechanics of Inhaled Pharmaceutical Aerosols Pulmonary Drug Delivery The Effect of Humidity on Aerosol Drug Delivery from Metered-dose Inhalers Controlled Pulmonary Drug Delivery Inhalation Drug Delivery Pharmaceutical Inhalation Aerosol Technology, Third Edition Aerogen: Breathing New Life Into Aerosol Drug Delivery The First International Conference on the Pharmaceutical Aerosol--a Drug Delivery System in Transition Aerosol Drug Delivery Device Design Verification Respiratory Drug Delivery (1989) Numerical and Experimental Study of Cyclone Separators for Aerosol Drug Delivery The Pharmaceutical Aerosol Aerosolized Surfactants Aerosol Loaded Toroidal Vortices for Enhanced Ocular Drug Delivery Drug Delivery to the Respiratory Tract The Effect of Aerosol Drug Delivery on Airway Resistance Through Heat-moisture Exchangers (HMEs) Effects of Different Nebulizers and Positions on Aerosol Salbutamol Drug Delivery in the Anesthetic Breathing Circuit Polymeric nanoparticles as controlled drug delivery systems for aerosol therapy to the lung Inhalation Aerosols Essentials of Aerosol Therapy in Critically ill Patients The Pharmaceutical Aerosol A Critique of the Statistical Protocol in ISO 20072 for Aerosol Drug Delivery Device Design Verification The Pharmaceutical Aerosol Pharmaceutical Inhalation Aerosol Technology Pulmonary Fluid Dynamics and Aerosol Drug Delivery in the Upper Tracheobronchial Airways Under Mechanical Ventilation Conditions Protein aerosol for nose-to-brain drug delivery Abstracts from the Aerosol Society Pharmaceutical Inhalation Aerosol Technology, Second Edition Abstracts from the Aerosol Society Drug Delivery to the Respiratory Tract Using Dry Powder Inhalers Protein Aerosol for Nose-to-brain Drug Delivery Nanostructured Aerosols for Pulmonary Drug Delivery Improving Pulmonary Drug Delivery Using Helical Aerosol Streams Respiratory Drug Delivery 8 Inhaler Devices Modified-Release Drug Delivery Technology

Pharmaceutical Inhalation Aerosol Technology, Second Edition Jun 24 2020 This thoroughly revised and expanded reference provides authoritative discussions on the physiologic, pharmacologic, metabolic, molecular, cellular and physicochemical factors, influencing the efficacy and utilization of pharmaceutical

aerosol. It analyzes the latest science and developments in the generation, administration and characterization of these compounds, showcasing current clinical applications, the efficiency and limitations of major aerosol products and emerging aerosol therapies impacting the field.

The Pharmaceutical Aerosol Nov 29 2020

Aerosol Loaded Toroidal Vortices for Enhanced Ocular Drug Delivery Sep 08 2021 Over that last few decades there has been an increase in the creation of new medicinal agents to treat various ophthalmic diseases, from small molecule drugs to highly targeted biologics. While these advances in drug discovery have enabled a new wave of therapies, many problems regarding their accurate, reproducible and safe administration still remain. The standard vehicle for topical ocular drug delivery is the eye drop, and despite its popularity, there are some significant limitations to their use. It is estimated that in many cases less than 5% of the active reaches the target tissues. While the remainder of the dose is either spilled out onto surrounding tissue or it is rapidly drained through the lacrimal ducts where it can be absorbed into the systemic circulation. Current drug delivery technologies have focused on improving bioavailability and patient compliance, and it is expected that further improvements can be made in these areas by incorporating the use of precision drug loaded aerosol vortices. Within the framework of this dissertation, two main aspects of a novel ophthalmic aerosol drug delivery device were investigated; the mechanical features that dictate the dose delivery, and the formulation aspects that control the characteristics of the aerosols that are being delivered. In early studies, investigations into the mechanism of the dose deposition were explored in order to gain knowledge into predicting the performance and to tune the delivery of a wide range of therapeutic concentrations. In later studies, after the device and dosing characteristics where established, studies were conducted on different formulation strategies in order to incorporate active pharmaceutical ingredients that would otherwise have unfavorable physicochemical characteristics for incorporation into an aqueous based system. These studies included the use of solubilizing agents and their effect on the characteristics of the aerosol generated from the device, as well as a novel particle engineering technology that could be utilized to incorporate the use of nanoparticles or colloidal particulates into the device or for other uses. The use of these formulation techniques thereby increases scope of therapeutic agents that can be incorporated for use in the device, further improving its therapeutic potential.

Respiratory Drug Delivery (1989) Jan 12 2022 The focus of this book is on subjects related to drug delivery to the lung. The text spans topics from aerosol deposition through pharmaceutical chemistry and formulation to the final clinical

evaluation of pharmaceutical products. Utilizing a multi-disciplinary approach, the chapters consider toxicology from the point of view of drugs and pharmaceutical excipients used in aerosols.

The Pharmaceutical Aerosol Nov 10 2021

Inhalation Drug Delivery Jun 17 2022 There has been a rapid evolution in the field of inhalation drug therapy, including new drugs, increased regulation and quality control, and strong pressure from generics. Inhalation Drug Therapy brings together the most current inhalation drug research, as well as practical developments and processes, into one essential guide. Focusing on inhalation products and specific equipment and techniques used in manufacturing and quality control, the book balances research with the industrial aspects of creating the drugs, and features a highly regarded author team with both academic and industry experience.

Pulmonary Drug Delivery Sep 20 2022 Drug therapy via inhalation route is at the cutting edge of modern drug delivery research. There has been significant progress on the understanding of drug therapy via inhalation products. However, there are still problems associated with their formulation design, including the interaction between the active pharmaceutical ingredient(s) (APIs), excipients and devices. This book seeks to cover some of the most pertinent issues and challenges of such formulation design associated with industrial production and desirable clinical outcome. The chapter topics have been selected with a view to integrating the factors that require consideration in the selection and design of device and formulation components which impact upon patient usability and clinical effectiveness. The challenges involved with the delivery of macromolecules by inhalation to both adult and pediatric patients are also covered. Written by leading international experts from both academia and industry, the book will help readers (formulation design scientists, researchers and post-graduate and specialized undergraduate students) develop a deep understanding of key aspects of inhalation formulations as well as detail ongoing challenges and advances associated with their development.

Controlled Pulmonary Drug Delivery Jul 18 2022 The pace of new research and level of innovation repeatedly introduced into the field of drug delivery to the lung is surprising given its state of maturity since the introduction of the pressurized metered dose inhaler over a half a century ago. It is clear that our understanding of pulmonary drug delivery has now evolved to the point that inhalation aerosols can be controlled both spatially and temporally to optimize their biological effects. These abilities include controlling lung deposition, by adopting formulation strategies or device technologies, and controlling drug uptake and release through sophisticated particle technologies. The large number of contributions to

the scientific literature and variety of excellent texts published in recent years is evidence for the continued interest in pulmonary drug delivery research. This reference text endeavors to bring together the fundamental theory and practice of controlled drug delivery to the airways that is unavailable elsewhere. Collating and synthesizing the material in this rapidly evolving field presented a challenge and ultimately a sense of achievement that is hopefully reflected in the content of the volume.

Aerosol Drug Delivery Device Design Verification. Requirements and Test Methods Dec 23 2022 Medical equipment, Aerosols, Drug administration, Nebulizers, Respiratory system, Inhalers, Drugs, Sprays, Drug containers, Design, Verification, Marking, Instructions for use, Testing

Aerosol Drug Delivery Device Design Verification Feb 13 2022

Nanostructured Aerosols for Pulmonary Drug Delivery Feb 19 2020 The main results of this research are that tuberculosis antibiotics can be formulated into porous particles and PNAPs for aerosol delivery, and that these powder systems represent a promising method to treat tuberculosis. In vivo testing showed that pulmonary delivery of particles, at equal or lower doses as compared to oral delivery, resulted in comparable systemic levels and elevated lung levels (with apparent targeting to cells), and that reduced aerosol doses indicated efficacy in treating tuberculosis. The combination of systemic exposure upon dosing and elevated lung levels between dosing indicates the possibility of lowering the frequency of dosing. Nanoparticle release from PNAPs and fate in the lungs can also be affected by designing formulation properties, such as nanoparticle size and concentration of nanoparticles contained within the PNAPs.

Aerosolized Surfactants Oct 09 2021 The overall aim of this research project was to develop surfactant dry powder formulations and devices for efficient delivery of aerosol formulations to infants using the excipient enhanced growth (EEG) approach. Use of novel formulations and inline delivery devices would allow for more efficient treatment of infants suffering from neonatal respiratory distress syndrome and bronchiolitis. A dry powder aerosol formulation has been developed using the commercial product, Survanta ® (beractant) and EEG technology to produce micrometer-sized hygroscopic particles. Spray drying and formulation parameters were initially determined with dipalmitoylphosphatidylcholine (DPPC, the dominant phospholipid in pulmonary surfactant), which produced primary particles 1 mm in size with a mass median aerodynamic diameter of 1-2 mm. Investigation of dry powder dispersion enhancers and alcohol concentration on the effect of powder aerosol characteristics were performed with the Survanta-EEG formulation. The optimal formulation consisted of Survanta®, mannitol and sodium chloride as

hygroscopic excipients, and leucine as the dry powder dispersion enhancer, prepared in 20% v/v ethanol/water. The powders produced primary particles of 1 mm with>50% of the particles less than 1 mm. The presence of surfactant proteins and surface activity were demonstrated with the Survanta-EEG formulation following processing. A novel containment unit dry powder inhaler (DPI) was designed for delivery of the surfactant-EEG formulation using a low volume of dispersion air. Studies explored optimization of air entrainment pathway, inlet hole pattern, delivery tube internal diameter and length. With 3-10 mg fill masses of spray dried surfactant powder, the DPI enabled delivery of>2 mg using one 3-mL actuation of dispersion air. Overall, it was possible to deliver>85% of the loaded fill mass using three actuations. Nebulized aerosol formulations are characterized with low delivered doses. Using a novel mixer-heater delivery system, the highest estimated percent lung dose achieved during realistic in vitro testing of a Survanta-EEG formulation aerosolized with a commercial mesh nebulizer was when nebulization was synchronized with inhalation of the breathing profile. Design changes to the mixer-heater system eliminated the need for synchronization, achieving an estimated percent lung dose of 31% of the nominal, an improvement compared with existing systems that achieve approximately

Drug Delivery to the Lung Nov 22 2022 This book focuses on the aerosol treatment of lung diseases, recent improvements in the understanding of proper dosage, and major innovations in device technology applied to clinical practice. Examines the behavior of inspired spherical particles in the respiratory tract! Featuring over 1300 references, drawings, tables, photographs, and micrographs, Drug Delivery to the Lung outlines the history of inhaled medications in the treatment of respiratory disease describes aspects of respiratory structure to inhalation therapy emphasizing developmental changes compares existing in vitro/in vivo correlations for key aerosol modalities with lung model predictions discusses particle diameter measurement, particle size statistics, and aerosol test methods reviews the clinical effects of altering the deposition site of various classes of aerosolized drugs surveys the development of novel, efficient, and convenient nebulizer systems details breath-actuated and spacer devices constructed for children analyzes dry-powder and pressurized metered dose inhalers considers the transition from CFCs to new environmentally friendly chemical propellants and more! Giving the clinician an overview of factors essential to understanding drug delivery via nebulization, Drug Delivery to the Lung is a superlative reference for pulmonologists; physiologists; pharmaceutical scientists; immunologists; allergists; analytical, organic, and medicinal chemists and biochemists; chemical, genetic, and process

engineers; and medical and graduate school students in these disciplines.

Pulmonary Fluid Dynamics and Aerosol Drug Delivery in the Upper Tracheobronchial Airways Under Mechanical Ventilation Conditions Sep 27 2020 "The effects of mechanical ventilation conditions on fluid flow and particle deposition were studied in a computer model of the human airways. The frequency with which aerosolized drugs are delivered to mechanically ventilated patients demonstrates the importance of understanding the effects that ventilation parameters have on particle deposition in the human airways. Past studies that modeled particle deposition in silico frequently used an idealized geometry with steady inlet conditions. With recent advancements in computational power and medical imaging capabilities, studies have begun to use more realistic geometries or unsteady inlet conditions that model normal breathing. This study focuses specifically on the effects of mechanical ventilation waveforms using a computer model of the airways from the endotracheal tube to generation 07, in the lungs of a patient undergoing mechanical ventilation treatment. Computational fluid dynamics (CFD), using the commercial software package ANSYS® CFX®, combined with realistic respiratory waveforms commonly used by commercial mechanical ventilators, large eddy simulation (LES) to model turbulence, and user defined particle force models were applied to solve for fluid flow and particle deposition parameters. The endotracheal tube (ETT) was found to be an important geometric feature, causing a fluid jet towards the right main bronchus, increased turbulence, and a recirculation zone in the right main bronchus. In addition to the enhanced deposition seen at the carinas of the airway bifurcations, enhanced deposition was also seen in the right main bronchus due to impaction and turbulent dispersion resulting from the fluid structures created by the ETT. The dependence of local particle deposition on respiratory waveforms implies that great care should be taken when selecting ventilation parameters"--Abstract, leaf iii.

Drug Delivery to the Respiratory Tract Aug 07 2021 In treating diseases of the respiratory tract, the direct administration of drugs has great advantages in terms of clinical efficiency. This book reviews the most important recent developments in drug delivery systems to the respiratory tract. Starting with a detailed description of lung strucure and function, successive chapters investigate the usefulness of the pulmonary presention of beta-agonists, steroids and chromoglycate, and explain metabolic function and susceptibility to chemical damage from the environment, showing that the lung is far from being a passive organ. Further contributions demonstrate the importance of mucus in humidification, particle capture and particle removal before attention is given to the practical problems of drug delivery and the commercially viable devices

available to the pharmaceutical technologist: the metered dose inhaler, the powder inhaler, and the jet nebuliser. The final chapter examines the future role of intranasal delivery systems, based upon the principles described.

Pharmaceutical Aerosol Drug Delivery Jan 24 2023 This book provides an updated overview of the fundamental principles of aerosol drug delivery and current aerosol delivery techniques. In addition, it gives insight into future techniques, inhalers, and applications, guiding the reader through the rationale for drug delivery to and via the lungs. All current major delivery systems are reviewed, and analysis of their performance is provided. As well, a review of regulatory testing requirements for inhalation products and a discussion of Quality by Design for inhalation products makes this essential reading for pharmaceutical scientists and technologists in drug delivery.

Protein Aerosol for Nose-to-brain Drug Delivery Mar 22 2020

The Mechanics of Inhaled Pharmaceutical Aerosols Oct 21 2022 The Mechanics of Inhaled Pharmaceutical Aerosols: An Introduction, Second Edition provides a concise, but thorough exposition of fundamental concepts in the field of pharmaceutical aerosols. This revised edition will allow researchers in the field to gain a thorough understanding of the field from first principles, allowing them to understand, design, develop and improve inhaled pharmaceutical aerosol devices and therapies. Chapters consider mechanics and deposition, specifically in the respiratory tract, while others discuss the mechanics associated with the three existing types of pharmaceutical inhalation devices. This text will be very useful for academics and for courses taught at both undergraduate and graduate levels. Because of the interdisciplinary nature of this book, it will also serve a wide audience that includes engineers and scientists involved with inhaled aerosol therapies. Provides a concise, but thorough exposition of fundamental concepts in the field of pharmaceutical aerosols Allows researchers in the field to gain an up-to-date, thorough understanding of the field from first principles Introduces the pharmaceutical aerosols field to the many engineers and scientists entering the area

Pharmaceutical Inhalation Aerosol Technology, Third Edition May 16 2022 This fully revised and updated third edition of Pharmaceutical Inhalation Aerosol Technology encompasses the scientific and technical foundation for the rationale, design, componentry, assembly and quality performance metrics of therapeutic inhalers in their delivery of pharmaceutical aerosols to treat symptoms or the underlying causes of disease. It focuses on the importance of pharmaceutical engineering as a foundational element of all inhaler products and their application to pulmonary drug delivery. The expanded scope considers previously unaddressed aspects of pharmaceutical inhalation aerosol technology and the

patient interface by including aerosol delivery, lung deposition and clearance that are used as measures of effective dose delivery. Key Features: Provides a thoroughly revised and expanded reference with authoritative discussions on the physiologic,pharmacologic, metabolic, molecular, cellular and physicochemical factors, influencing the efficacy and utilization of pharmaceutical aerosols Emphasizes the importance of pharmaceutical engineering as a foundational element of all inhaler products and their application to pulmonary drug delivery Addresses the physics, chemistry and engineering principles while establishing disease relevance Expands the 'technology' focus of the original volumes to address the title more directly Offers an impressive breadth of coverage as well as an international flavour from outstanding editors and contributors

Inhalation Aerosols Apr 03 2021 This unique reference integrates the theory and practical use of aerosols in inhalation therapy into a single resource-presenting the physical chemistry of formulation, the physics of aerosol generation, aerodynamic behavior, and therapeutic implications. Offers up-to-date techniques for droplet and particle generation, including air-blast and ultrasonic nebulizers, propellant-driven metered-dose inhalers, dry-powder inhalers, and elecctrospray systems!

Optimization of Aerosol Drug Delivery Feb 25 2023 Aerosol therapy has significantly improved the treatment of a variety of respiratory diseases. Besides the treatment of respiratory diseases there is currently also a great interest to use the lungs as a portal to introduce drugs for systemic therapy. The success of therapy with the application of aerosolized medicaments depends on the possibility to deliver the proper amount of drug to the appropriate sites in the respiratory system, thus limiting the side effects to a minimum. Aerosolized delivery of drugs to the lung is optimized if, for a given chemical composition of a medicine, the target of deposition and the required mass of drug to be deposited are precisely defined. The next step is the specification of the number of respirable particles or droplets, to be generated by appropriate devices. Another very important factor for successful aerosol therapy is the condition of the patient coupled with his or her inhalation technique.

The Effect of Aerosol Drug Delivery on Airway Resistance Through Heat-moisture Exchangers (HMEs) Jul 06 2021 The use of heat moisture exchangers (HMEs) is becoming more popular with many institutions delivering aerosolized medications between the HME and the endotracheal tube of patients being mechanically ventilated. When HMEs become saturated resistance can increase which can cause changes that can lead to patient-ventilator dysnchrony, development of intrinsic PEEP, and weaning difficulty. The purpose of this study was to determine the effects of aerosol drug delivery on resistance through heat-

moisture exchangers. An in-vitro model to simulate exhaled heat and humidity from a patient's lungs was developed by connecting the test lung to a cascade humidifier that was placed between the endotracheal tube and the test lung. Temperature (37°C) and relative humidity (100%) were held constant through all test runs. Ventilator settings used for the study were as follows: Tidal volume 500 mL, frequency 15/min, PEF 60 L/min, PEEP 5 cmH2O, bias flow 2 L/min and I:E ratio 1:3. The pressurized metered-dose inhaler (pMDI; ProAir HFA) with a minispacer (Thayer Medical), hand-held nebulizer (HHN; Salter Labs) and placebo (No aerosol generator or medication) were compared. Albuterol sulfate (2.5 mg/3 ml) was administered through continuous HHN and six puffs of albuterol were given from a pMDI equaling one treatment. Neither medication nor aerosol device was used with the placebo group in order to determine the effect of HME on airway resistance during mechanical ventilation. Six aerosolized treatments were given to simulate a patient receiving albuterol every four hours over a twenty-four hour period. While five minutes was allowed between treatments, airway resistance was measured via the ventilator before and after the administration of the placebo, pMDI and HHN, which equaled five-minute intervals. Data Analysis: Descriptive statistics, dependent t-tests, one-way analysis of variance (ANOVA), repeated measures ANOVA and post-hoc multiple comparisons were utilized for the data analysis of this study, using SPSS version 16.0. A p-value

Protein aerosol for nose-to-brain drug delivery Aug 27 2020

Numerical and Experimental Study of Cyclone Separators for Aerosol Drug Delivery Dec 11 2021

Respiratory Drug Delivery 8 Dec 19 2019

Drug Delivery to the Respiratory Tract Using Dry Powder Inhalers Apr 22 2020

Aerosols are an effective method to deliver therapeutic agents to the respiratory tract. Among aerosol generation systems, dry powder inhalers have been an attractive area of research for both local and systemic delivery of drugs. The challenge of any inhalation delivery system is to generate particles with an adequate range of particle sizes. In order to advance powder aerosol technologies, researchers have recognized the importance of investigating determinants affecting powder dispersion. The effect of particles' surface characteristics, inhalation airflow rate, inhalation device, and development of an effective drug-carrier system are some of the fundamental areas that have been under investigation. The aim of this thesis is to study parameters that govern the aerosolization characteristics of inhalation drug particles. In order to improve the therapeutic bioavailability of drugs, the current work demonstrates several techniques to manipulate the surface characteristics microand nanoparticles of

two model drugs, namely; progesterone and 5-fluorouracil. With the recent interest in the development of targeted therapy, the present study introduces novel carriers for controlled delivery of magnetic nanoparticles to the respiratory tract. Management of nanoparticles physical characteristics as well as drug encapsulation efficiency was achieved via controlling variable formulation parameters. The findings presented in this dissertation suggest a significant dependence of the aerosol characteristics on the characteristics of both drug and drug-carrier system. In this sense, with an increasing development of potent drug molecules for potential drug delivery via inhalation, it becomes quite pivotal to first accurately assess the determinant factors for lung deposition and dispersion behavior of dry powders. In this context, we proposed a novel setup for assessment of in-vitro aerosol deposition under the effect of an external magnetic field. The results suggest significant dependence of the particles dispersion behavior and deposition profile on their physical properties as well as the presence of magnetic field for their guidance to the required lung site. Encapsulating the drug in the proposed carrier system offered the advantage of controlled drug delivery; which is beneficial for therapeutic delivery of chemotherapeutic agents. Enhanced in-vitro cytotoxicity was achieved via controlling the formulation parameters in the engineered magnetic nanoparticles. Finally, this work presents alternative techniques of designing micro- and nano-vehicles for pulmonary drug delivery, with a localized deposition in the diseased area and the potential to reduce dose-related adverse effects.

The First International Conference on the Pharmaceutical Aerosol--a Drug Delivery System in Transition Mar 14 2022

Abstracts from the Aerosol Society May 24 2020

Polymeric nanoparticles as controlled drug delivery systems for aerosol therapy to the lung May 04 2021

Abstracts from the Aerosol Society Jul 26 2020

Effects of Different Nebulizers and Positions on Aerosol Salbutamol Drug Delivery in the Anesthetic Breathing Circuit Jun 05 2021 Background: Aerosol bronchodilator is an option to relieve bronchospasm during anesthesia. The recent study demonstrated impact of the nebulizer type, position in the ventilator circuit and reservoir spacer to the medication delivery in the intensive care ventilator models. However, this information is lacked in the anesthetic breathing circuit. Objective: To determine the effects of different types of nebulizer and positions on the amount of aerosol drug delivery in the anesthetic breathing circuit. Method: The 180 cm anesthetic breathing circuit with fresh gas flow 2 L/min (oxygen 1 L/min and air 1 L/min) is connected to a test lung, ventilated by pressure controlled 20 cmH2O, I:E ratio 1:2, respiratory rate 12 breath per min.

Two different types of nebulizer (the continuously operated jet nebulizer 6 L/min, oxygen or the vibrating-mesh nebulizer) were tested in 2 breathing circuit positions (near the inspiratory valve or 30 cm before the Y-piece adapter). Each nebulization (2.5 mg of salbutamol sulfate diluted to 5 mL) was operated for 15 min. The aerosol salbutamol was collected using the mechanical bacterial filter connected between the Y piece and the test lung. Salbutamol was eluted from the filter using deionized water and was measured at u03bb289 nm using UV-visible spectrophotometer. Each experiment was performed in triplicate. Result: For the jet nebulizer placed near the inspiratory valve or at 30 cm before the Y-piece, the amount of eluted salbutamol from the filter membrane were not statistical difference (597.3u00b132.8 u00b5g vs. 621.5u00b174.0 u00b5g, respectively). For the vibrating mesh nebulizer placed near the inspiratory valve, the amount of eluted salbutamol was significantly lower than at 30 cm before the Y-piece (588.2u00b159.6 u00b5g vs. 794.2u00b137.8 u00b5g, respectively) (p

The Effect of Humidity on Aerosol Drug Delivery from Metered-dose Inhalers Aug 19 2022

The Pharmaceutical Aerosol Feb 01 2021

Modified-Release Drug Delivery Technology Oct 17 2019 Describing formulation challenges and their solutions in the design, development, and commercialization of modified-release drugs delivery systems, this book contains eighty papers that review recent developments in design and manufacturing techniques. It includes detailed descriptions of extended release drug products for the oral, nasal, ophthalmic, pulmonary, vaginal, dermal and transdermal pathways. With the exception of the final section addressing regulatory issues, each section covers a particular route for drug delivery and opens with an overview of the anatomical, physiological, and pharmaceutical basics of each route before moving on to cover specific technologies.

Inhaler Devices Nov 17 2019 Given their direct impact on the health and quality of life for millions, inhalers represent a major turning point in the history of modern medicine. Inhaler devices: Fundamentals, design and drug delivery provides readers with an introduction to the fundamentals of inhaler technology, with a comprehensive discussion of the history of inhalers as well as a discussion on current research and development. Part one discusses the fundamentals and development of inhaler devices as well as drug formulations for inhalers. The treatment of asthma is also discussed. Part two reviews recent developments in drug formulation and nanotechnology for inhaler devices, emerging inhaler technology and possible future trends. Inhaler devices: Fundamentals, design and drug delivery is an essential design guide for good industrial practice, and will be an invaluable resource for those researching and treating conditions such

as asthma; and those developing and manufacturing inhalation devices. Introduces the fundamentals of inhaler technology Discusses the history of inhalers as well as current research and development as well as possible future trends Considers the development of inhaler devices, drug formulations and discusses the treatment of asthma

Aerogen: Breathing New Life Into Aerosol Drug Delivery Apr 15 2022

Improving Pulmonary Drug Delivery Using Helical Aerosol Streams Jan 20 2020

A Critique of the Statistical Protocol in ISO 20072 for Aerosol Drug Delivery Device Design Verification Dec 31 2020

Pharmaceutical Inhalation Aerosol Technology Oct 29 2020 This fully revised and updated third edition of Pharmaceutical Inhalation Aerosol Technology encompasses the scientific and technical foundation for the rationale, design, componentry, assembly and quality performance metrics of therapeutic inhalers in their delivery of pharmaceutical aerosols to treat symptoms or the underlying causes of disease. It focuses on the importance of pharmaceutical engineering as a foundational element of all inhaler products and their application to pulmonary drug delivery. The expanded scope considers previously unaddressed aspects of pharmaceutical inhalation aerosol technology and the patient interface by including aerosol delivery, lung deposition and clearance that are used as measures of effective dose delivery.

Essentials of Aerosol Therapy in Critically ill Patients Mar 02 2021 This book assesses the most appropriate forms of aerosol therapy for critically ill patients. Aerosol therapy is applied for the treatment of several pulmonary diseases in addition to some promising applications intended for systemic absorption. Nowadays, aerosol delivery to clinically stable patients in the outpatient settings is done easily with a lot of focus on patient counseling and enhancement of lung deposition. A lot of guidelines are available for several diseases and it could offer adequate guidance to the therapists concerning escalation or de-escalation of therapy to enhance treatment efficiency and safety. However, in critically ill patients aerosol delivery is mostly done by the choice of the respiratory therapist only according to his knowledge. The book describes the type of patients requiring aerosol therapy, different aerosol generators available for the treatment of critically ill patients, mechanisms of aerosol lung deposition, and factors affecting aerosol deposition. It also discusses the special needs of neonates and infants, transitioning aerosol from hospital to home, and the methods of aerosol delivery to different patient e.g. nasal delivery patients, ventilated patients, etc. Moreover, it reviews methods of detecting such aerosol delivery to the lung. At the end, it discusses the suggested monitoring plans and weaning protocols to ensure high efficacy and safety of the ventilatory support in such patients. Given

its scope, the book can serve as guidelines or specific recommendations to maximize clinical benefits of medicated aerosols in critically ill patients and it represents a valuable resource for intensivists, pulmonologists and healthcare professionals working at ICUs.

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