DESCRIPTION

A comprehensive guide to the current research, major challenges, and future prospects of controlled drug delivery systems

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

Divided in three parts, the book begins by introducing the concept of drug delivery and discussing both challenges and opportunities within the rapidly evolving field. The second section presents an in-depth critique of the common administration routes for controlled drug delivery, including delivery through skin, the lungs, and via ocular, nasal, and otic routes. The concluding section summarizes the current state of the field and examines specific issues in drug delivery and advanced delivery technologies, such as the use of nanotechnology in dermal drug delivery and advanced drug delivery systems for biologics. This authoritative resource:

• Covers each main stage of the drug development process, including selecting pharmaceutical candidates and evaluating their physicochemical characteristics

• Describes the role and application of mathematical modelling and the influence of drug transporters in pharmacokinetics and drug disposition
• Details the physiology and barriers to drug delivery for each administration route

• Presents a historical perspective and a look into the possible future of advanced drug delivery systems

• Explores nanotechnology and cell-mediated drug delivery, including applications for targeted delivery and toxicological and safety issues

• Includes comprehensive references and links to the primary literature

Edited by a team of of internationally-recognized experts, *Fundamentals of Drug Delivery* is essential reading for researchers, industrial scientists, and advanced students in all areas of drug delivery including pharmaceutics, pharmaceutical sciences, biomedical engineering, polymer and materials science, and chemical and biochemical engineering.

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