1. Record Nr. UNINA9910731459303321

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Titolo	Pulmonary Drug Delivery Systems: Material and Technological Advances / / edited by Piyush Pradeep Mehta, Vividha Dhapte -Pawar
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	981-9919-23-1
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (465 pages)
Altri autori (Persone)	Dhapte -PawarVividha
Disciplina	616.24061
Soggetti	Respiratory organs - Diseases Critical care medicine Respiratory organs Physiology Internal medicine Pneumology Intensive Care Medicine Respiratory Physiology Internal Medicine
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Crystal engineering: a versatile platform for pulmonary drug delivery -- Thin-film freezing: A state-of-art technique for pulmonary drug delivery -- Supercritical fluid technology-based powders and particles for pulmonary drug delivery -- Nano-in-Micro particles (NiMPs) for pulmonary drug delivery -- Application of porous particles in pulmonary drug delivery -- Application of numerical simulations (CFD) to probe powders, particles and inhalers -- Chitosan-based particulates carriers for pulmonary drug delivery -- Multifunctional cyclodextrins carriers for pulmonary drug delivery: prospects and potential -- TPGS functionalized carriers: An emerging approach for pulmonary drug delivery -- Engineering of hydrogels for pulmonary drug delivery: Opportunities and challenges -- Resourceful quantum dots for pulmonary drug delivery: Facts, Frontiers and Future -- Metal-organic frameworks: a toolbox for multifunctional pulmonary applications -- Inhalable prodrugs for pulmonary therapeutics -- Role

of biologicals (RNA, DNA and siRNA) in pulmonary therapy.

Sommario/riassunto

This book provides an insight into state-of-art developments in pulmonary drug delivery systems. It comprises several chapters covering a wide range of promising technologies and novel materials explored for developing effective pulmonary drug delivery systems. The initial book chapters elucidate role of thin film freezing, supercritical fluid technology, nano-in-micro particles system, crystal-engineered microstructures and porous particles in pulmonary drug delivery. The subsequent book chapters elaborate on various functional excipients such as chitosan, cyclodextrins, and Vitamin E-TPGS to attain local and systemic therapeutic action. There are book chapters focussed on diverse novel carrier systems such as hydrogels, quantum dots, metal-organic framework, and prodrug approach. Additionally, book also contains chapters, exclusively dedicated to biologicals and numerical simulation in pulmonary therapeutics. The book chapters follow a sequential order, beginning with the pulmonary relevance of technology or polymeric materials, carrier synthesis schemes, current technical state-of-art, along with clinical, industrial, and regulatory aspects. Each chapter contains a future perspective section that will systematically reflect the current state of advances in pulmonary drug delivery. It also offers a practical basis for audience to understand the design and function of the delivery systems for better therapeutic outcomes. The book provides balanced views by considering the investigations from various scientific domains and industrial knowledge. Briefly, this book aims to collect, analyse, and bring together the latest developments in pulmonary drug delivery with more focus on materials and technologies. Indeed, this book is a valuable source for readers and researchers who wish to learn more about the advances in pulmonary drug delivery systems.