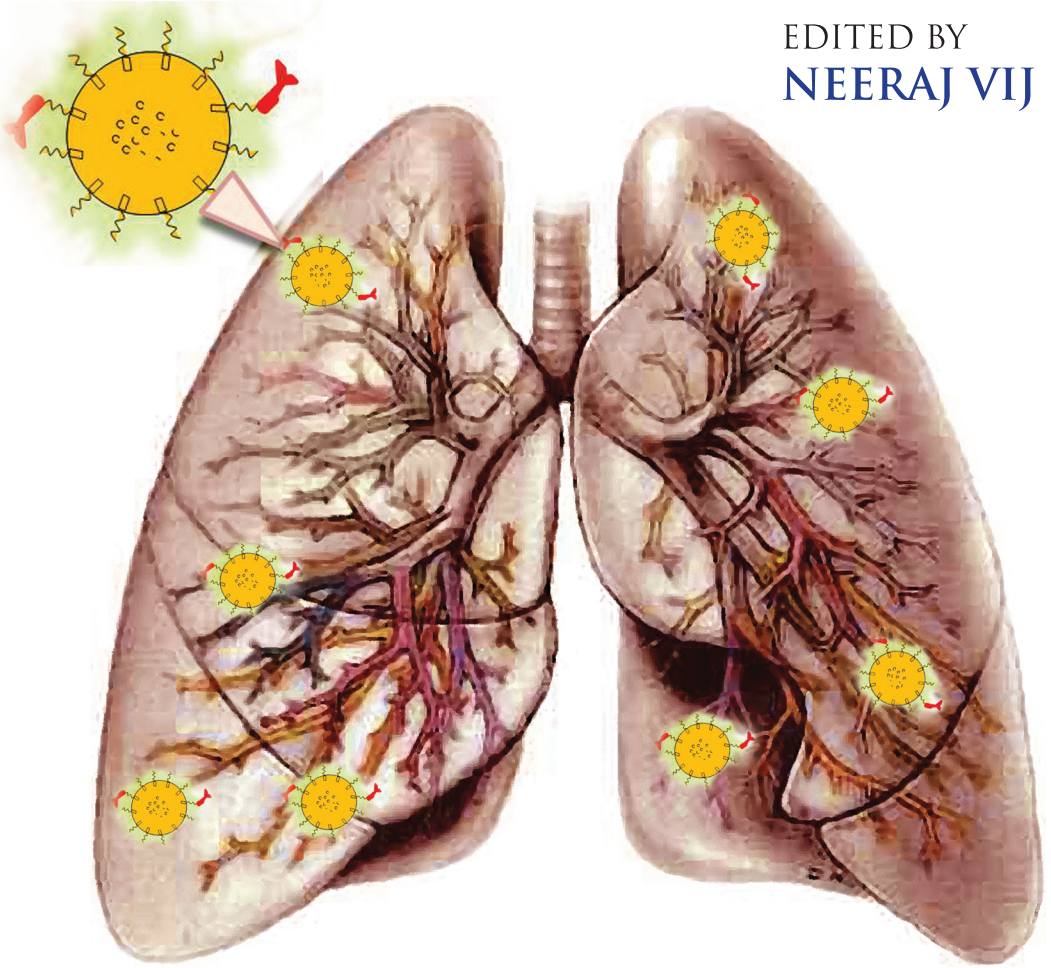


EDITED BY
NEERAJ VIJ



PULMONARY NANOMEDICINE

DIAGNOSTICS, IMAGING,
AND THERAPEUTICS



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*To the fond memory of my parents,
who taught me to seek enlightenment and knowledge
and strive for excellence.*

*Dearest souls,
although you have departed and moved far away,
your perpetual memory in our hearts
makes us feel that you are ever near us, with us.*

—N.V.

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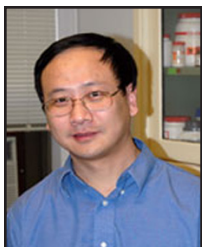
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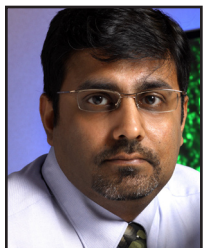


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The primary research focus of Dr. Vij's laboratory is identification of molecular pathways leading to chronic disease pathophysiology, with an aim to identify novel therapeutic sites. His laboratory is interested in applied and pre-clinical translational research and concentrates on the identification of novel therapeutic strategies including design and development of nano-based delivery systems for theranostic applications in chronic obstructive lung diseases.

Dr. Vij is the editor of this book and senior author of Chapter 1, which discusses the theranostic applications of nanotechnology in chronic obstructive lung diseases.

Preface

Nanotechnology has revolutionized medicine over the past decade. The unique physicochemical characteristics of engineered nanoparticles (ENPs) enable novel therapeutic and diagnostic (theranostic) applications, particularly in pulmonary diseases. The research over the past decade has provided insights into biological properties and application of NPs in pulmonary medicine.

This book provides a comprehensive review on the pulmonary applications of NPs and aims to enlighten the readers about novel nano-based theranostic strategies for treating pulmonary disorders. Each chapter discusses strategies to overcome the technological and disease-specific pathophysiological barriers to develop novel nano-based diagnostics, imaging, and therapeutic tools for treatment of various airway diseases.

In summary, the book is focused on emerging cutting-edge applications of nanotechnology in pulmonary medicine and aims to synchronize the efforts of pulmonary biologists, nano-chemists, and clinicians to develop novel nano-based theranostic systems for treatment of airway diseases.

This book has been compiled with the goal to serve both academic institutions and industry for education, training, and research. It is written to educate graduate and postgraduate students on emerging theranostic applications of ENPs in treating various pulmonary diseases. It will also serve as a guide for both clinicians and researchers in developing novel theranostics while closely monitoring the health effects of next-generation ENPs.

Overall, this is a wikipedia of pulmonary nanomedicine that discusses the scope of both current and future nanotechnologies for pulmonary applications.

Neeraj Vij, MS, PhD
Baltimore, MD
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Neeraj Vij

