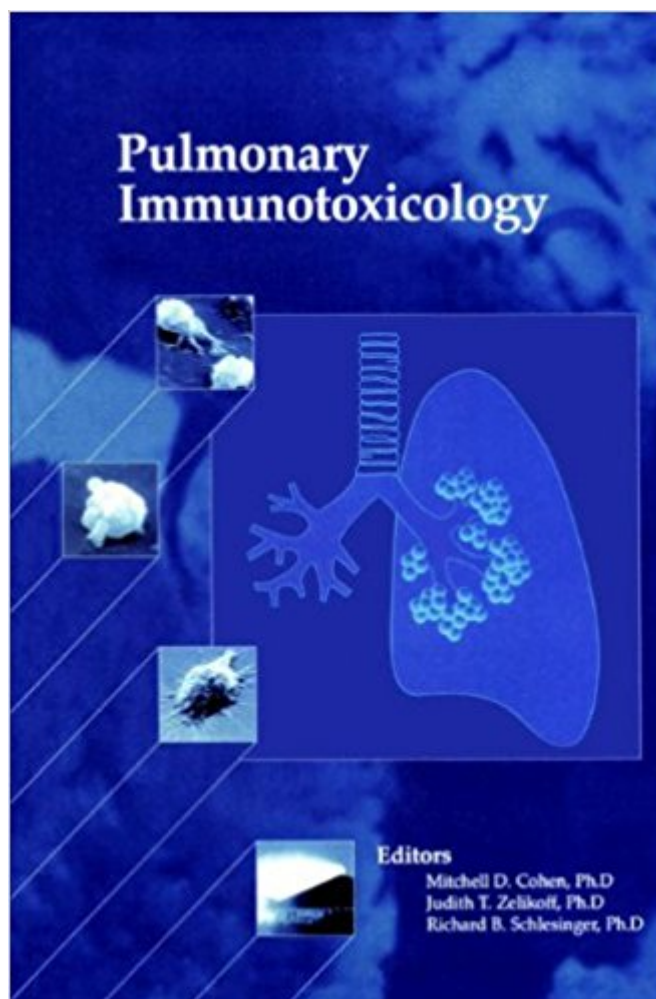


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# Pulmonary Immunotoxicology



## Synopsis

Pulmonary Immunotoxicology is a comprehensive exploration of the effects of various inhaled materials upon the immune system of the respiratory tract. It will be useful to investigators in the field of pulmonary toxicology and immunotoxicology, and to those involved in administration and regulation of matters related to inhaled materials. It can also serve as a textbook for a course in pulmonary immunotoxicology at graduate or advanced undergraduate level. Pulmonary Immunotoxicology comprises four sections. The first provides basic background concepts essential for understanding pulmonary immunotoxicology, including discussions of the normal structure and function of the respiratory system, its basic immunology, and the manner by which inhaled particles and gases are removed from the air and deposited upon respiratory tract surfaces. The second section provides an overview of the major types of pathological consequences which can arise from immunomodulation within the respiratory tract, including hypersensitivity and asthma, inflammation and fibrosis, as well as immunosuppression and autoimmunity. The third section, which comprises the largest portion of the book, deals specifically with major classes of airborne agents that are known to alter the immune function of the respiratory tract. These are arranged into major classes: organic agents, metals, gases, particles, biologics, and complex mixtures. The fourth and final section of the book explores the area of risk assessment, including discussions of the basic concepts of risk assessment as they apply specifically to immunotoxicologic effects upon the lungs, and the use of biomarkers as indices of potential pulmonary immunotoxic responses to inhaled materials.

## Book Information

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## Customer Reviews

When I first looked at the title of this book, I was both pleased and relieved. Pleased that an attempt had been made to consolidate the concepts of pulmonary immunotoxicology. Relieved that now I could turn or refer others to a single source of information about how a pollutant might affect susceptibility to infection, allergies, or other lung diseases associated with the immune system. Thus, I opened this book with great expectations, and for the most part those expectations were met. The editors and authors have done an excellent job of pulling together discussions of complex and diverse topics into a readable and informative book. The book has four sections. The first two are divided into three chapters each and provide the basic background. The three introductory chapters orient the reader to the structure of the respiratory system, the pulmonary immune system, and the fate of inhaled gases and particles. The next three chapters describe what can happen to the respiratory system (primarily the lung) when the immune system is altered -- that is, the allergic, fibrotic, or autoimmune diseases that can affect the lung. Pulmonary immunotoxicology is distinguishable from general toxicology and immunology in that it requires an understanding of pulmonary function, the deposition of gases and particles, the clearance of substances from the respiratory tract, and the relations between these processes and innate and acquired immunity. The complex and dynamic relations between respiratory-system function and defenses make this a challenging and exciting topic. The first six chapters provide the reader with an appreciation of the complexity of the topic, but the level of detail is such that immunologists and toxicologists appear to be the target audience. Indeed, a good working knowledge of these disciplines would be a prerequisite for understanding most of the topics covered in the book, although a background in pulmonary physiology is not needed. The next 10 chapters give specific examples of immunotoxicants. All of the discussions would seem to have deficiencies to a reader who is working actively on any of these topics. But for the clinician or researcher who wants basic information about the pulmonary toxicity or immunotoxicity of a given compound or class of pollutants, this would be a good place to start. The chapters are well referenced, and one can easily find citations of sources of more detailed information if it is desired. The final two chapters deal with risk assessment and biomarkers. They provide a nice summary of many of the topics that are covered, and they show how data regarding the exposure of animals and environmental assessment can be combined to promote understanding of complex topics. These chapters are most useful to the reader who wants an introduction to risk assessment and biomarkers, but they also demonstrate the use of pulmonary immunotoxicologic data in the assessment of environmental and occupational hazards. The design of the book makes it somewhat cumbersome. The lack of chapter headings on each page of text

makes reading more difficult than necessary. Frequently, when I tried to check references, I had to search page by page to find the references that went with the chapter I was reading. The figures and tables are not clearly set apart, so their captions and legends run into the text. Nevertheless, this book is a useful general reference on an important topic. The chapters on specific topics may provide a useful source of information on subjects that are outside the reader's area of research. Overall, this book succeeds in its stated purpose of describing the ways in which occupational or environmental exposure to various substances changes immune function in the respiratory tract and how it may affect a person's health. Daniel M. Lewis, Ph.D. Copyright © 2001 Massachusetts Medical Society. All rights reserved. The New England Journal of Medicine is a registered trademark of the MMS.

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