

lier. Also, the volume on breathing during sleep (volume 224) should be broken up into sections with a particular focus (ie, apparent life-threatening episodes and sudden infant death syndrome, obstructive sleep apnea, new technology), rather than just a straight listing of chapters in the table of contents.

The editors of these 2 volumes are leaders in sleep medicine and pediatric pulmonology. They have drawn on some of the world's leading experts on pediatric sleep medicine. These 71 contributors come from a wide range of fields, including sleep medicine, pulmonology, neurology, psychiatry and psychology, physiology, surgery, and dental medicine. Many of the authors represent a "Who's Who" of pediatric sleep medicine, with their research being on the cutting edge of this field.

These 2 texts provide a well thought out and well written update on the emerging field of pediatric sleep medicine, and I hope future editions in this series are planned for this important subject. These volumes are geared more toward the medically oriented specialist in pediatric sleep medicine. A working knowledge of the field would make for a better understanding of the material presented. Because of the focus of the material covered in these texts, I suspect that the majority of the readers of *RESPIRATORY CARE* would have little use for these 2 books. More basic texts would be better a choice for this journal's audience. Beginners in the field of sleep medicine might also be overwhelmed with the material presented. That being said, these volumes would represent an excellent addition to the library of any pediatric sleep specialist or sleep fellowship program.

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**Overcoming Steroid Insensitivity in Respiratory Disease.** Ian M Adcock and Kian Fan Chung, editors. Chichester, United Kingdom: John Wiley & Sons. 2008. Hard cover, illustrated, 304 pages, \$150.

Corticosteroids are the most effective available therapy for asthma at present.

Clearly, patients would be poorly served without them. Yet between 5% and 10% of all asthma patients demonstrate an inadequate response to corticosteroids. Even oral corticosteroids may prove inadequate for some. Problems of steroid resistance may also arise in other inflammatory pulmonary diseases. Such problems are further complicated by the substantial adverse effects corticosteroids demonstrate, especially at the higher doses that may be required in the face of resistance. Corticosteroid resistance presents enormous difficulties for clinicians as well as patients. This book, written by world-renowned scientists, provides the background to help clinicians and researchers understand this critically important subject. It is highly welcome, since this is an area that until now has not been well addressed.

Topics range from the glucocorticoid receptor and its molecular mechanisms of action to inhalation as a drug delivery mechanism. The principal target audience for this book is researchers in varied settings studying either biomedical or clinical aspects of corticosteroid activity and use. Clinicians who wish a more in-depth, molecular-level understanding of the therapies they use and the adverse effects they may see will also find the book as a whole of interest. In addition, the chapter on adverse effects, the two on corticosteroid-sparing strategies, and the one on inhalation therapy may be directly useful to physicians in clinical practice, while the ones on adverse effects and inhalation therapy may be similarly helpful for nurses and respiratory therapists. Such readers should be aware, however, that while the writing style is clear and appropriate for its intended audience, it makes few concessions to those who may be less expert in molecular mechanisms. Likewise, the chapters on the role of macrophage migration inhibitory factor in regulating corticosteroid response and on kinases as potential therapeutic targets in asthma offer little information of direct clinical usefulness, yet will be highly appreciated by basic science researchers.

The most innovative and provocative theme of this book is developed in Chapters 3 and 4. This is the concept that, since the glucocorticoid receptor has numerous isoforms, these isoforms may have somewhat different functions, perhaps affecting different tissues. These isoforms may also have somewhat different selectivities for structural variations in the steroid molecule they

bind. Consequently, it may be possible to develop drugs specific for a given tissue or ones that lack the activities associated with adverse effects. Indeed, one corticosteroid based on this concept has now entered clinical trials.

Chapters 5 through 7 then examine the molecular basis for the lack of corticosteroid response seen in some patients. Chapter 5 describes an uncommon genetic condition in which mutations of the glucocorticoid receptor decrease the body's general sensitivity to corticosteroids. Chapter 6, and especially Chapter 7, develop the idea that similar but more subtle changes may underlie variations in patient response, although Chapter 6 also addresses the possibility that poor response may reflect features of the disease as well as of the patient. Although these chapters focus on asthma, they also address other diseases where corticosteroid resistance may occur. A later chapter explores the pharmacokinetics and pharmacodynamics of corticosteroids and how they may affect an individual patient's response. These chapters provide information that will be very helpful to researchers in the field but, with the possible exception of Chapter 6, are unlikely to prove directly useful to clinicians.

All chapters in this book are well organized and easy to follow, and the authors have done an excellent job of researching, synthesizing, and presenting the vast amount of literature available. The references cited are both comprehensive and up to date; notation of important seminal papers is distinctly helpful. Relevant clinical examples are welcome on the occasions when they appear. Although a certain amount of repetition is inevitable in a multi-author text, the editors have done a very good job of minimizing duplication of material and restricting it to instances where it may usefully emphasize important points.

Despite the general excellence of the book, there are a few minor caveats. The color inserts add an unnecessary expense without, in my opinion, adding much to the usefulness. A few of the chapters lacked sufficient concluding summaries, or concluding summaries altogether, that would have helped solidify the main points in the reader's mind. Chapter 10 would also have benefited from additional tables summarizing the studies cited.

Overall, this book represents a superb presentation of the background and current un-

derstanding of a field with important clinical implications. It concisely and eloquently synthesizes a large body of work into an easily readable format. As such, every asthma researcher—indeed everyone investigating corticosteroids in any disease area, whether a pharmacologist, a basic biomedical researcher, or a clinical researcher—should have this book on his or her bookshelf.

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**The Pulmonary Epithelium in Health and Disease.** David Proud, editor. West Sussex, United Kingdom: John Wiley & Sons. 2008. Hard cover, illustrated, 440 pages, \$200.

**The Pulmonary Epithelium in Health and Disease** consists of 20 chapters that provide a thorough, comprehensive review of the physiology and pathophysiology of the lung epithelium, ranging from the cellular structure and molecular mechanisms to its role in the pathogenesis of lung disease and as a target of therapeutic interventions. This book will provide a valuable reference tool for any reader with a particular interest in lung diseases and epithelial biology.

Despite its apparent simplicity, the lung epithelium is a highly complex tissue that plays a number of essential roles in the lung. Some of these roles include serving as a selective barrier, participating in host defenses, modulating the inflammatory response, and preserving the integrity of the air spaces by decreasing surface tension. The multiple roles of the epithelium are well covered in this book.

The initial chapters are focused on the normal epithelium, and discuss its cellular structure, the molecular adhesion systems, and the mechanisms of epithelial repair. This is followed by chapters discussing the best known functions of the lung epithelium: water and ion transport, the ciliary system, and the production of mucus and surfactant. Next, a series of chapters addresses the role of the epithelium in host defenses, including the epithelial mechanisms of pathogen

recognition, the role of the epithelium in the innate immune response, and the specific interactions of the epithelium with bacterial and viral pathogens. Finally, the book explores the role of the epithelium in inflammatory airway diseases, including the interactions of the epithelium with pollutants and allergens, the role of the epithelium in airway inflammation and remodeling, and the role of the epithelium as a target of therapeutic drugs.

Some chapters stand out. The chapter on pulmonary surfactant manages to convey the complexities of surfactant physiology in a particularly clear way, and the description of how surfactant stabilizes the alveoli by decreasing their surface tension is an example of how a complex physiological concept can be explained with refreshing simplicity. Equally informative and accessible were the chapters on the structure of cilia and the composition of the airway mucus. And the chapter on epithelial adhesion structures provides a concise yet thorough review of the ever increasing set of epithelial adhesion molecules. These chapters provide an outstanding introduction to some of the most important functions of the airway epithelium and are recommended reading to students, post-docs, and people who are entering the field.

One of the most important functions of the lung epithelium, which has been described relatively recently, is its role in the innate immune response. Once thought to be a simple barrier, the epithelium is now known to produce an array of cytokines and other mediators that play a key role in generating an inflammatory response to bacterial and viral pathogens, and this is true for both the airway and the alveolar epithelium. The book provides a good review of the role of the epithelium in the recognition of pathogens by way of pattern recognition receptors (perhaps too good—this discussion appears in at least 3 different chapters) and an outstanding description of the epithelium as a source of anti-microbial molecules. However, in general, the discussion of the epithelium and innate immune responses is focused on the airway epithelium, and perhaps it could have been expanded further to cover more extensively the role of the alveolar epithelium.

For example, in acute lung injury the role of the alveolar epithelium as an inflammatory tissue is being increasingly recognized. While it was previously thought that the

macrophage was the primary source of cytokines in the alveolar spaces, there is increasing evidence suggesting that, instead, the macrophage may serve primarily as a modulator of the inflammatory response by releasing “early” cytokines such as tumor necrosis factor alpha (TNF- $\alpha$ ) and interleukin 1 $\beta$  (IL-1 $\beta$ ), while the alveolar epithelium appears to be the primary source of neutrophilic cytokines, such as IL-8 or, in the mouse, keratinocyte chemoattractant (KC).

Perhaps one of the main weaknesses of this book, dedicated as it is to the totality of the lung epithelium, is that the different “lung epithelia” (large-airway, bronchiolar, and alveolar) are not always clearly differentiated in the discussions, and in many chapters the word “epithelium” is made synonymous with “airway epithelium”; for example the chapter on “epithelium as a target,” which explores the mechanisms linking epithelial damage with disease pathophysiology, completely ignores the alveolar epithelium and its key role in multiple disease processes, including emphysema, pulmonary fibrosis, and acute lung injury. One particular area that might have been covered with some additional detail is the role of epithelial apoptosis in the pathogenesis of lung disease. A growing body of evidence suggests that alveolar epithelial apoptosis, induced by both the receptor-dependent and the receptor-independent pathways, is a key step in the development of pulmonary fibrosis and lung injury. Experimental therapeutic approaches aimed at blocking alveolar epithelial approaches appear to be promising in animal models of acute lung injury and of pulmonary fibrosis. However, a discussion of this topic is notoriously absent from this book. Overall, the airway epithelium is better covered in this book than the alveolar epithelium, and perhaps the title should be modified to read “the *airway* epithelium in health and disease,” rather than the more general title, “the pulmonary epithelium.”

The book is nicely presented. The total number of pages is 440, many of which contain illustrations. There is a good index, and in general it is easy to locate information within the book.

In summary, **The Pulmonary Epithelium in Health and Disease** provides a well updated review of the structure and function of the pulmonary epithelium, with particular emphasis on the airway epithelium. Technicians, students, fellows and physicians involved in lung research and inter-