

lipid, and survivin are associated with malignancy, manipulations of β -GBP cytokine, 5-fluorouracil, and endothelial and neural progenitor cells are promising for cancer therapy.

A variety of molecular mechanisms of cancer therapy have been studied, but the ultimate goal of all of these therapies is to induce apoptosis in tumor cells. Conventional anti-cancer drugs try to damage DNA and subsequently initiate the apoptotic machinery in cancer cells, but their imprecise targets make them inefficient. Apoptosis is one particular form of programmed cell death. Anticancer therapies that simultaneously promote apoptosis and suppress pro-survival mechanisms would likely be the most effective. Some promising therapies have been summarized in this book, such as small cancer-specific compounds capable of blocking pathogenesis-related and tumor-essential pro-survival pathways, inhibition of endothelial survival factor or activation of endothelial apoptotic machinery, survivin cancer vaccination, and antibodies. To date, however, no anticancer agents completely induce apoptosis in tumor cells. Furthermore, they cause unexpected adverse effects and promote genomic instability.

The conceptual framework of apoptosis has been frequently revised. A new book summarizing the emerging insight of how apoptosis causes human diseases would be exciting. However, this book falls short of providing much novelty. Many chapters lack an appropriate scientific writing style, are poorly presented, or fail to provide quality illustrations. None of the illustrations are in color, which detracts from the overall presentation. Symbols and scientific terms have been used inconsistently throughout the book. In addition to these deficiencies, the approach is outdated. Reviews are simply compiled in separate subtopics without any attention to coherently organizing topics in such a way that the richness of references accumulated over the last couple of decades can be fully appreciated. Because of the lack of organization, the book is difficult to follow, and some concepts are repeated in different chapters. Few novel concepts have been presented, although extensive and illuminating references are provided. Compared with previous books on similar topics, this book lacks a systematic examination of the various topics and fails to update the fundamental molecular basis of apoptosis.

Apoptosis is a complex network response in which mediators play more important roles than do downstream caspases. The current electric circuit network as described in this book provides limited information on the cross-talk and quantitative intensity of signal transduction among components in this complex network. In 348 pages, this text presents little information for practical cancer therapy. Novel systems biology approaches should be used to construct a new systemic network specific to a particular cancer. Such networks could be used to identify the bottlenecks and network hubs for specific types of apoptosis defects and to systematically model the complex apoptosis system. A new systems biology approach would simplify the complex network, resulting in more effi-

cient therapies. Data from epigenetics and noncoding DNA studies combined with systems biology would greatly accelerate our overall understanding of apoptosis.

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BREATHING SPACE: HOW ALLERGIES SHAPE OUR LIVES AND LANDSCAPES

By Gregg Mitman, 312 pp, \$30.
New Haven, CT, Yale University Press, 2007.
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IN THE GRAND SCHEME OF THINGS, ALLERGIES ARE A RELATIVELY new human phenomenon. Allergic disorders, rarely referred to in medical writing prior to the 20th century, have become a modern scourge, and Gregg Mitman's book is a refreshing chronicle of the complex interplay of nature and nurture that have characterized these illnesses.

In the first chapter, Mitman chronicles the rise of the "hay fever holiday." More recently termed seasonal allergic rhinitis, hay fever in 19th-century United States was just being recognized, although certainly not understood. It was a prestigious condition and considered a disease of the culturally refined, aristocratic classes, perhaps due to the nervous exhaustion that accompanied the rigors of the modern life of leading citizens. Hay fever associations, many of which were exclusive clubs, were popular in the late 1800s. Persons of means escaped the urban "summer catarrh" by vacationing in rural resorts in the White Mountains, near Lake Michigan, and elsewhere. These resorts were famous for catering specifically to people with allergic rhinitis and asthma. As late as 1951, national periodicals still featured hay fever resort destinations. This would change, however, with population spread, development of antihistamines, and a host of other factors.

In the second chapter, Mitman traces the recognition that allergic disorders were less of a problem with nerves than with the body's reaction to certain biological substances. Ragweed, in particular, came to be recognized as a major cause of allergic respiratory symptoms. Ragweed thrives in areas of disturbed soil, such as those found in poorly tended urban locales. Mitman includes historical pictures from a 1942 issue of *Life* magazine, in which New York City sanitation workers are seen ridding the urban landscape of ragweed plants. He also notes the liberal and enthusiastic use of pesticides in the post-World War II era, as humans attempted to control their environments with modern herbicides.

Simultaneously, as scientists began to understand the relationship of plant pollens to allergy symptoms, they ex-

perimented with self-injection of crude pollen extracts. These early attempts at a type of vaccination resulted in symptoms that provide classic descriptions of anaphylactic reactions. By 1915, a number of physicians were injecting patients with early forms of immunotherapy (allergy shots), although it would take most of the century to refine the process and to understand how such injections actually worked.

Mitman then traces the westward migration of patients with respiratory diseases. Many people subsequently found relief from allergic rhinitis and asthma in Colorado and Arizona. (Of note, another likely reason these locations were therapeutic was the lack of dust mites in dry climates. Dust mites, microscopic arthropod consumers of shed human skin cells, contribute to year-round symptoms in allergic persons.) Patients with other pulmonary disorders, such as tuberculosis, also ventured west in search of a cure from Mother Nature. Some of the nation's most prominent centers for the research and treatment of pulmonary diseases, such as National Jewish Hospital in Colorado, arose from the needs of these concentrated groups of patients.

In this chapter and the next, Mitman chronicles how the migration of humans and the accompanying development resulted in changes to the land and ecosystems. Urbanization required generation of energy, construction of transport systems, and the unfortunate disruption of soil. Deserts were made to bloom with nonnative plants, and smog choked off previously pristine air. In large cities, high-rise buildings provided convenient abodes for large numbers of persons but also became home to cockroaches, dust mites, rodents, and animal companions. Allergenic proteins from any of these creatures can trigger hypersensitive reactions in susceptible persons. Is it specifically such environmental exposures that cause asthma? How much do poverty or race contribute to susceptibility and severity of disease? Mitman explores these questions and reviews the substantial societal impact of allergic diseases, particularly as it pertains to concentrated groups of persons in urban areas.

In chapter 5 readers learn more about everything to do with the indoor environment. Unbelievably, although house dust was recognized as an allergic trigger by 1922, the dust mite was not identified as the responsible agent until 1966, when Marise Spiekma-Bozeman, a botany and zoology student at the University of Leiden, identified the mite living among shed skin cells. This discovery, along with improved understanding of other allergens, led to a hectic period devoted to home engineering and modifications. Vacuum cleaners, air filters, furniture covers, and thermostats were just a few of the modern inventions designed to help those with allergies.

Mitman's last chapter focuses on the development of pharmaceutical treatments. He chronicles the rise of antihistamines, β -agonists, anti-inflammatory inhalers, and other medications. He also notes several potent forces that influence how research money is spent and how medications are marketed. His argument, supported by a well-researched body of data in the book, is that understanding how the hu-

man organism interacts with the evolving external environment is crucial and that complete comprehension of allergic disease requires a balanced inquiry into both internal and external human milieu.

Mitman's personal experience with asthma brings a heightened sense of urgency to this rather unique work. This book is a must-read for allergists and immunologists, particularly those still in training. The book will also be of interest to general physicians, who are at the front lines of caring for patients with allergic diseases, and to general readers interested in the complex interplay of environment and human disease.

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ALLERGIC DISEASES: DIAGNOSIS AND TREATMENT

Edited by P. Lieberman and J. A. Anderson, 3rd ed, 484 pp, \$99.
Totowa, NJ, Humana Press, 2007.
ISBN-13 978-1-5882-9603-0.

THIS VOLUME MAY WELL HAVE BEEN ENTITLED "EVERYTHING I needed to know about allergy but never learned in medical school." The authors are recognized "master clinicians" in allergy and immunology and have a combined 70 years of experience in teaching and practice. They have edited a practical, down-to-earth book on allergy for the front-line primary care physician. There are 41 contributors, all of whom are well-known in their respective fields and active clinicians serving a multitude of patients. Most have academic appointments, but several are in full-time private practice. There is no ivory tower perspective gleaned from the writing in this book.

In the introductory chapters, readers learn that 25% to 30% of the human population is allergic to something. Furthermore, allergy can affect virtually any organ, and many nonallergic disorders mimic allergy symptoms—so the likelihood is high that a practicing physician will encounter a patient, friend, or family member with an allergy-related question. This book is intended to help the practicing physician with such questions.

Allergy testing is critical for the evaluation of the patient with allergies but must be interpreted in light of the history and overall clinical presentation. The "Diagnostic Tests in Allergy" chapter clearly defines the criteria for the clinical diagnosis:

- 1) a history of signs and symptoms typical of allergic disease at a time and place when allergen exposure is occurring and 2) demonstration that the patient has IgE antibodies specific for the allergen associated with the occurrence of symptoms.

The chapter goes on to list the comparative advantages of allergy skin tests vs in vitro IgE antibody tests (ie, radioallergosorbent tests [RAST]). Immediate-type skin tests have