

Cellular Microbiology, 2nd ed.

Pascale Cossart, Patrice Boquet, Staffan Normark, and Rino Rappuoli, editors

**ASM Press, Washington, DC
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Pages: 593, Price: US \$119.95**

The field of cellular microbiology is relatively new and incorporates aspects of microbiology and host cellular biology. The first edition of this text, published in 2000, was novel and well received. In general, this new edition is also well written and includes many of the most important recent advances in the field (e.g., microarrays and genome sequencing). The text deals almost exclusively with host cell responses elicited by interactions with pathogens. The editors are top researchers in the field of bacterial cellular microbiology, and they have brought together many new investigators to write chapters in their areas of expertise.

The book's first 2 chapters contain topical background information. These chapters thoroughly cover many of the basic concepts in molecular cell biology and introduce all of the various pathogens (bacterial, viral, and eukaryotic) currently being examined in the popular literature. The organization of the subsequent chapters typically alternates between topics in cell biology and bacterial pathogenesis. For example, chapter 11 describes assembly of the cellular cytoskeleton, while chapter 12 describes the mechanisms used by pathogenic bacteria to manipulate the cytoskeleton. Subsequent chapters provide good coverage of bacterial secretion systems, toxins, and their interactions with the host immune system. Generally, the figures, dia-

grams, and drawings are well chosen, and the tables contain sufficient detail to demonstrate critical points. This is particularly true for chapters 4–6, which describe the host cell surface properties, how pathogenic bacteria adhere to and enter the host cell, and ultimately how the pathogen induces various types of cell signaling. The final chapters focus on new methods of identifying virulence genes and the use of nonvertebrate hosts, such as plants and insects, to model mammalian infections.

This book has only a few drawbacks. For example, the first 2 introductory chapters are too detailed. In subsequent chapters, the emphasis is placed on bacterial pathogens; only 1 chapter is dedicated to viruses and none to eukaryotic pathogens (only the introductory paragraphs in chapter 1) or to nonpathogenic microorganisms of any kind.

This volume will be an important addition to the resources available to students and researchers in general cell biology or microbiology. Perhaps Internet interactive companion programs and accompanying CDs would be useful with future editions. Because the field is moving so quickly, the authors might consider more frequent updates.

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Biology of Disease Vectors – 2nd ed.

William C. Marquardt, editor

**Elsevier Academic Press,
Burlington, Massachusetts
Second Edition
ISBN: 0-12-473276-3
Pages: 785, Price US \$99.95**

This edition is a massive, 7-section, 57-chapter medical entomology reference text. The chapters are written by 72 experts from around the world and provide an understanding of disease vectors on a broad front, including biologic requirements of vectors, epidemiology, molecular biology, genetics, principles of control, and insecticide resistance. The text consistently emphasizes molecular biologic approaches to these topics.

This book begins by discussing the vectors themselves, with chapters on mites, ticks, true bugs, lice, fleas, mosquitoes, and various dipterans such as tsetse flies and sand flies. Line drawings and black-and-white pictures abound. The number of color photos is limited; those in the kissing bug/bed bug chapter and the flea chapter are especially beautiful. Subsequent sections delve into the physiologic and genetic basis of vector biology. The final 2 sections concern controlling insects and acarines and special (laboratory) methods associated with vectors. The last section, which deals with laboratory methods, is like a giant appendix in which updates are given for the care, maintenance, and experimental infection of various disease vectors, including notes on handling, housing, rearing facilities, containment, and safety issues.

One of the most helpful chapters for this reviewer was the one entitled, "Systematic Relationships among Disease Vectors," which defines

molecular systematics terminology and explains how phylogenetic relationships among species are inferred from molecular data. I wish every traditional taxonomist and systematist would read this chapter.

This book contains a few misspellings (e.g., the chapter title in the Table of Contents, Chapter 46), but no major errors. Its only weakness seems to be one of disunity. The title doesn't match the book's content, and the text is so comprehensive that it seems unfocused. There are chapters on chemical and genetic control of vectors, cell culture, and even research safeguards for transgenic mosquitoes. How these fit under the title biology of vectors was difficult to discern. Perhaps in future editions, the chief editor could split the book into several separate volumes, each with a more appropriate title.

Nevertheless, this book is an indispensable reference and a wonderful treasure trove of information about medical entomology. Its only flaws are organizational, not factual. The chief editor, section editors, and authors are to be congratulated on this scholarly work.

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Tuberculosis and the Tubercle Bacillus

Steward T. Cole,
Kathleen Davis Eisenach,
David N. McMurray,
and William R. Jacobs Jr, editors

ASM Press, Washington, DC
ISBN: 1-55581-295-3
Pages: 584; Price: US \$125.95

Mycobacterial infections, including tuberculosis (TB) and leprosy, are bacterial diseases of global importance. An estimated 2 billion people are infected with *Mycobacterium tuberculosis*. Control of TB is complicated by its ease of transmission, difficulty in administering the long-course chemotherapy regimens, and subsequent appearance of multidrug-resistant strains (MDR-TB). This situation is made even worse by the deadly combination of coinfections of HIV and *M. tuberculosis*. New approaches to the control of TB are urgently needed, including development of short-term antimicrobial regimens to minimize the appearance of drug resistance, new drugs to treat MDR-TB patients, and new vaccines with greater efficacy than BCG.

Tuberculosis and the Tubercle Bacillus has many contributors; chapters are provided by experts in many areas of TB research to bring together a comprehensive update of research development in the past decade. The publication of this book is necessary and timely, considering the current urgencies and growing interests of investigators from various fields.

The book is divided into 3 sections, each consisting of multiple chapters on various subjects. The first section focuses on clinical aspects of the disease, including the global impact of TB, clinical and epidemiologic features, as well as diagnosis and treatment. The second section deals with the bacteriology of *M. tuberculosis*, with chapters devoted to molecular genetics, genomics, cell wall structure and synthesis, and metabolism. The third section details the host-pathogen interaction, covering topics such as the intracellular survival of *M. tuberculosis*, host immune response, animal models, and vaccine development.

The book accurately reflects current knowledge of TB and recent research efforts and progresses to the control of the disease. The book flows smoothly from chapter to chapter. Each chapter is clearly written and appropriately referenced. The book focuses primarily on *M. tuberculosis*; research performed on other mycobacterial species is not discussed or only briefly mentioned. Nevertheless, at 584 pages, this book is easily read and is a useful reference for clinicians and basic scientists, including students, laboratory supervisors, and senior scientists.

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Vector Borne diseases are the illness caused by the vectors. A vector is a carrier of the causative microbe for various diseases such as mosquitoes, ticks and fleas. The reproduction rates of vectors are influenced by climate and weather. Such diseases are widespread and found throughout the world. More than 700,000 patients die of vector-borne diseases. The major vector-borne diseases constitute about 17% of the infectious diseases in the world. Vector-Borne diseases can be prevented in the following ways: Vaccines should be developed for protection against disease-causing viruses. Insect repellants such as DEET or Permethrin can be applied to the skin and clothes respectively. biologic requirements of vectors, epi- demiology, molecular biology, genet- ics, principles of control, and insecti- cide resistance. The text consistently emphasizes molecular biologic. approaches to these topics. tion of various disease vectors, including notes on handling, housing, rearing facilities, containment, and safety issues. One of the most helpful chapters. for this reviewer was the one entitled, "Systematic Relationships among Disease Vectors," which defines. The opinions expressed by authors on Biology of Disease Vectors presents a comprehensive and advanced discussion of disease vectors and what the future may hold for their control. This edition examines the control of disease vectors through topics such as general biological requirements of vectors, epidemiology, physiology and molecular biology, genetics, principles of control and insecticide resistance. Methods of maintaining vectors in the laboratory are also described in detail. No other single volume includes both basic information on vectors, as well as chapters on cutting-edge topics, authored by the leading experts in the