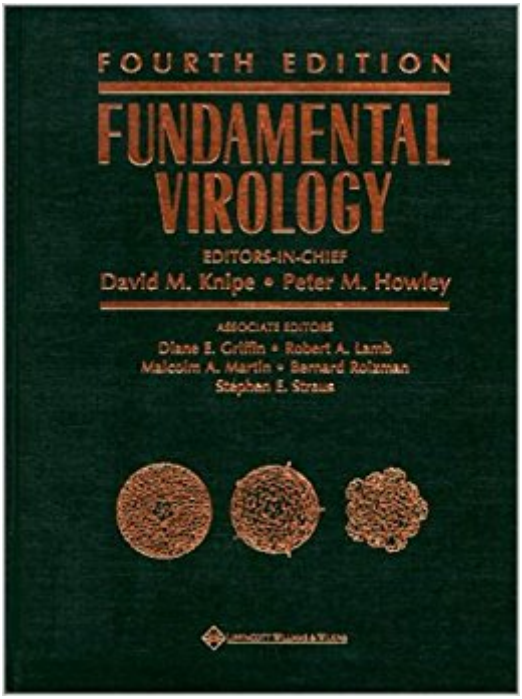
Fundamental Virology



Synopsis

Designed for graduate students and researchers in all biological and biomedical sciences, this volume brings together the basic science chapters from the two-volume Fourth Edition of Fields Virology. These 37 chapters comprise a comprehensive text and reference on the concepts and research techniques of contemporary virology and the biochemistry, molecular biology, and replication of all viruses. The first part of the book covers basic concepts of general virology and the second part focuses on specific virus families.

Book Information

Series: Fundamental Virology

Hardcover: 1408 pages

Publisher: LWW; Fourth edition (August 15, 2001)

Language: English

ISBN-10: 0781718333

ISBN-13: 978-0781718332

Product Dimensions: 11.3 x 8.7 x 1.8 inches

Shipping Weight: 6.5 pounds

Average Customer Review: 5.0 out of 5 stars 3 customer reviews

Best Sellers Rank: #1,677,399 in Books (See Top 100 in Books) #73 inÃ Â Books > Medical Books > Basic Sciences > Virology #296 inÃ Â Books > Textbooks > Medicine & Health Sciences > Medicine > Basic Sciences > Immunology #422 inÃ Â Books > Textbooks > Medicine & Health Sciences > Medicine > Basic Sciences > Microbiology

Customer Reviews

For non-experts in the subject (such as this reviewer), this book gives a fascinating overview of organisms that have challenged humankind’s domination of this planet. Although the book is targeted toward students and biologists, anyone who has a keen interest in virology will gain much from its perusal. Packed with diagrams, and containing hundreds of references, readers should have no problems in assimilating the information in the book, even though it is quite sizable. I only read chapters 1, 2, 5, 6, and 13 (due only to time constraints and not because the other chapters were deemed unimportant) so my review will be confined to listing some of the interesting facts and helpful features of the book.These include: 1. The discussion on the history of virology, especially the discussion on D’Herelle’s dream and Koch’s postulates. The early years of virology are impressive given that viruses could not be seen at the time due to the lack of suitable microscopes.

2. The actual number of species of viruses is 1550, with 2404 tentative species. 3. The methods by which the different viruses were identified experimentally, such as cell cultures and recombinant DNA technology. 4. The methods for measuring the infectivity of viruses. 5. The method of fluctuation analysis for measuring spontaneous mutation rates in viruses. The difference in spontaneous mutation rates between DNA and RNA viruses is astonishing. The authors point out the ability of RNA viruses to exist as "quasi-species", being capable of very rapid adaptation because of the high spontaneous mutation rate. 6. The simple replication abilities of RNA viruses, which although very error prone, results in very rapid evolutionary response. 7. In plant viruses, the existence of genome segments that are frequently packaged in distinct virions, which results in the need for several viruses to co-infect in order to transmit infectivity. 8. Viral RNA genomes are very rich and contain nearly every structural variation possible. 9. The role of horizontal gene transfer in producing the antigenic shifts that produce new pandemic strains of influenza. 10. The ability of cells to counteract virus infections by using gene silencing or the interferon system. Some viruses have evolved mechanisms for evading these defenses. 11. The replication strategies for DNA viruses, and the mechanisms that have evolved to evade host defenses. 12. Viral DNA replication is initiated by using proteins as primers. 13. The ability of viruses to evade host defenses by withdrawing into a latent state. Only a few proteins are expressed when the virus is in this latent state. The authors encourage the reader to pursue research into the mechanisms that are behind the initiation and release from latency, since at the time of writing these mechanisms are not well understood. 14. Gene therapy, certainly the most fascinating of all topics in virology and genetic engineering. 15. The role of self-inactivating (SIN) vectors in enhancing the safety of viral vectors.

I love it. The book looks great to me.The book was came on time. The package looks great too.

This is one of the primary books used at UC Berkeley. Text is very thorough, great details and citations.

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