Viral Pathogenesis and Immunity, Second Edition

Neal Nathanson
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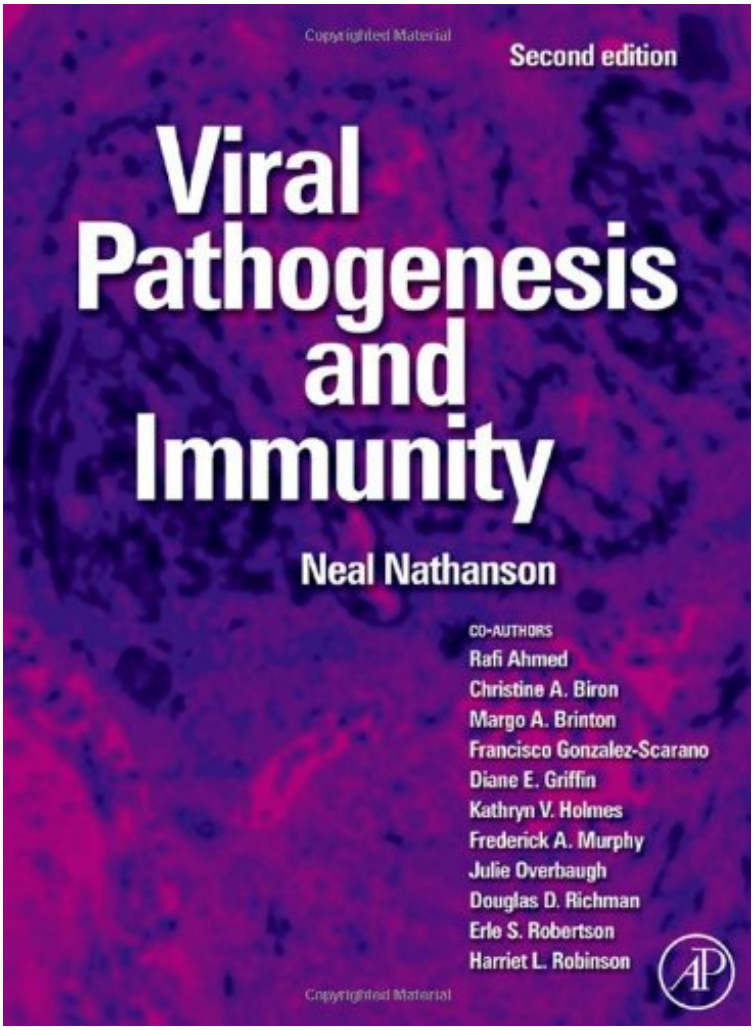

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Neal Nathanson : Viral Pathogenesis and Immunity, Second Edition before purchasing it in order to gage whether or not it would be worth my time, and all praised Viral Pathogenesis and Immunity, Second Edition:

1 of 1 people found the following review helpful. Interesting and helpfulBy Dr. Lee D. CarlsonIf there is one organism that could stymie the human status as the predominant life form on the planet it would have to be the virus. Of course, viruses not only infect humans, but plants and other animals as well. They can wreck havoc on a population, in spite of their simple biological structure. But even though they are simple organisms from a biochemical and genetic standpoint, their power to cause harm is not due solely to their biological structure. It is also due to the biology of the life forms that they infect, which can sometimes assist, and sometimes thwart, a viral invasion.This book emphasizes the latter ability in that it discusses the details of how the immune system responds to a viral invasion. When compared with most books on virology, this one is relatively short, but it gives enough details to be helpful to those readers how

have a genuine curiosity about immunology. Students of microbiology will probably be exposed to more detailed treatments, but can no doubt use this book as a supplement to their studies. Readers will need background in genetics, biochemistry, and microbiology to read the book, but the preparation is reasonable for non-experts (such as this reviewer). A helpful summary of each chapter's content is included at the end of each chapter.Everything about viral immunology is fascinating, and examples of this that are discussed in this book include:1. The phenomenon called `tropism', which is the restriction of viral replication to specific tissues and cells.2. The lifecycle of arboviruses alternates between the insect vector and the vertebrate host.3. Certain viruses can remain in the blood for very long periods of time and evade the immune system.4. Most RNA viruses have the ability to replicate within neural processes.5. Some viruses can disseminate by both viremia and neural spread.6. Some viruses can be shed from the skin (a good example of this is the bioterrorism against American Indian tribes by using blankets containing skin particles from persons who had smallpox).7. The role of VAPs (virion surface proteins) in allowing a virus to attach to its cellular receptor.8. More dangerous viruses are associated with the ability to spread more widely in vivo.9. Virus replication is restricted to a particular range in temperatures.10. Viral infection does not necessarily disrupt normal cell activity due to the enormous number of proteins produced by the cell daily.11. Given the optimal conditions, viral dissemination does not seem to have an upper bound.12. Viral infection need not occur even though the virus initiates the correct pathologic processes in the cell.13. Membrane permeability can be altered by viruses via the introduction of viral proteins that act as ion channels.14. Some viruses can block the apoptosis pathway, which prolongs the production of the viruses by the infected cells.15. The role of the interferon (IFN) system in combating viral infection. The IFN system can produce nearly one hundred proteins, some of which can interfere with virus replication.16. The role of `natural killer (NK) cells' in combating viral infection.17. The experimental methods used to measure the ability of the antibody to bind to viral antigens.18. The mechanism by which antiviral antibodies can bind to the virus and neutralize it.19. The immune systems acts in short time scales via the effector cells, and on long time scales via the antibody response.20. The phenomenon of viral disease mediated by the immune system response to infection rather than the infection itself.And there are some open questions that arise in the book:1. A detailed explanation of the role of the fusion of viral and plasma membranes in viral entry.2. A thorough understanding of the steps taken in the transmission of the nucleocapsid into the cell nucleus.3. A complete understanding of the mechanism by which NK cells protect against viral infection.4. An understanding of the mechanism by which an antibody can act on the intracellular phase of the replication of the virus, and the role it plays (if any) in viral infections.5. A thorough understanding of the ability of an extracellular stimulus to purge the intracellular viral RNA and proteins.All of the discussions in the book will convince the reader that viruses are highly resilient organisms that make use of many different mechanisms for replication and infection. A natural question to ask is whether using the techniques of genetic engineering one could engineer a "universal" or "supervirus" that could replicate and infect a host for any particular host biology. The virus would then have the ability to tune its replication and infection mechanism to the host at hand. The study of this book casts doubt on this possibility. It is readily apparent from a study of this book that virus infectivity is very specific to the biology of the host. This does not rule it seems the engineering of a virus that can target a particular host genome. There is no evidence (that this reviewer is aware of) from the literature on genetic engineering that such a virus, called a 'genome-targeted' virus in some popular accounts, is of interest in the scientific research community. If such research is being conducted it is no doubt done in a classified environment. Such a virus it seems would be of great interest to those who are involved in research in gene therapy.2 of 2 people found the following review helpful. Really goodBy JoeTAs a virologist, I like to look at books on viruses.This is a good one.I was recently told that it is no longer in print but on Kindle only. To me, that's both stupid and unfortunate.If you want a really good book on how virus interact with the immune system, then try to find this book.You'll be glad you did.1 of 1 people found the following review helpful. Good book, well paced, too bad out of printBy ChazMakes Virology easy to understand. Too bad it is out of print. Thanks to for always having the text I need. Most people won't look at this review because it is a required book anyways, but if Tinghitella makes you buy it, he has chosen wisely.

Based on the highly successful reference work Viral Pathogenesis published in 1997, this concise, economical version can be used both as an introductory text or for self-education by medical students and biologists alike. This latest edition provides a completely revised overview of the subject with new chapters on innate immunity, emerging viral diseases, and antiviral therapy in a format that is easy to understand without continually referring to additional information. Used by the author in his graduate classes at the University of Pennsylvania, it sets forth the essential principles and discusses the details of how the immune system responds to viral invasion including the treatment and prevention of infection. Illustrated by pertinent examples it is one of the only books devoted exclusively to this topic. * Offers almost a 20% expansion over the first edition * Focuses specifically on viral pathogenesis unlike other texts where only a few chapters are devoted to the topic* Neal Nathanson is one of the primary authorities in the field and has authored chapters on viral pathogenesis in two of the most well known virology and microbiology titles Field's Virology and Topley and Wilson's Microbiology* Now in four color throughout!

About the AuthorNeal Nathanson is emeritus Professor of Microbiology at the University of Pennsylvania. He has spent most of his 50-year career working on the pathogenesis of a wide variety of viral infections, using animal models to investigate the viral and host determinants of disease. He edited the prior two editions of Viral Pathogenesis.