Immunology and Evolution of Infectious Disease

Steven A. Frank
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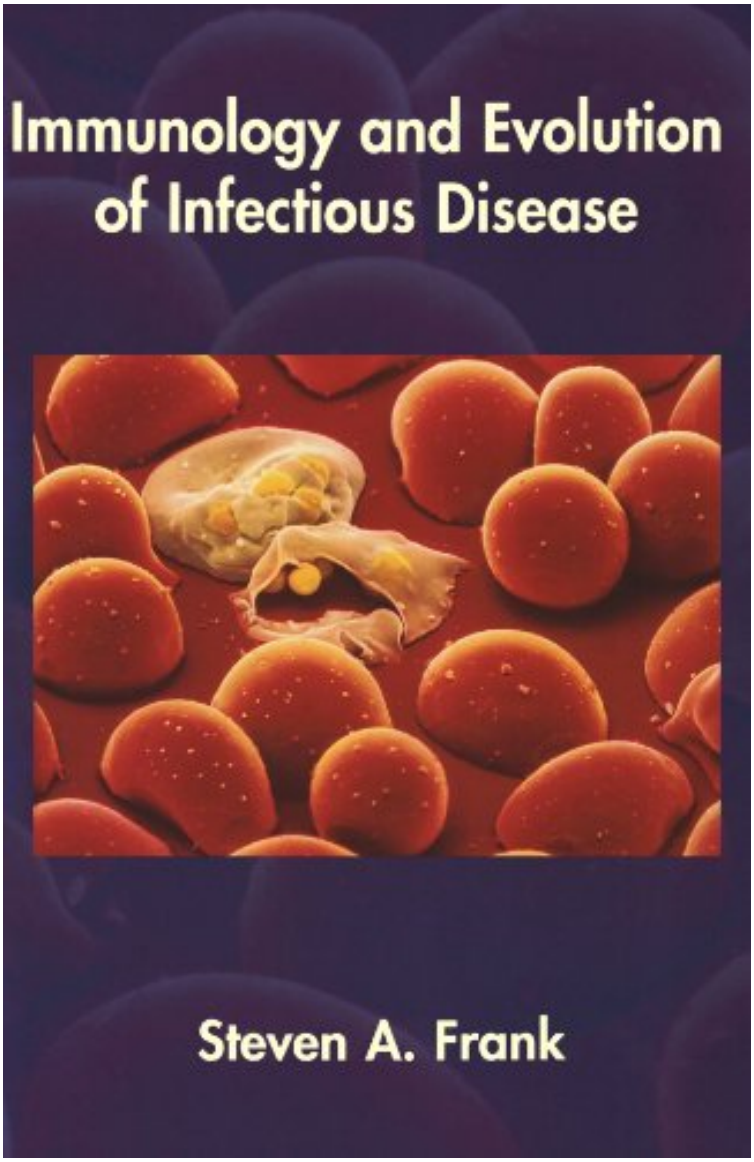

#686494 in Books Princeton University Press 2002-07-21Original language:EnglishPDF # 1 9.25 x .82 x 6.00l, 1.13 #File Name: 0691095957360 pages | File size: 73.Mb

Steven A. Frank : Immunology and Evolution of Infectious Disease before purchasing it in order to gage whether or not it would be worth my time, and all praised Immunology and Evolution of Infectious Disease:

6 of 15 people found the following review helpful. ExcellentBy Reluctant BadgerI really like this book. It presents a wonderfully concise set of well written examples, with key literature cites. Some very interesting problems that illuminate the complexity.Minor erratum on page 117. States that sum of squares of the two alleles is the incidence of the combined. Correctly, when squaring both sides it is:(p+q)^2 = 1^2p^2 + 2pq + q^2 = 12pq = 1- p^2 - q^2pq = (1 -

p^2 - q^2)/2So properly speaking, it is one-half of 1 - sum of the 2 squares for the simple case of 2 alleles. i.e. about 27%But, that is a minor technical error that is common to make. The book is very good and does an excellent job of bridging the gap between introductory material and advanced research questions.

From HIV to influenza, the battle between infectious agents and the immune system is at the heart of disease. Knowledge of how and why parasites vary to escape recognition by the immune system is central to vaccine design, the control of epidemics, and our fundamental understanding of parasite ecology and evolution. As the first comprehensive synthesis of parasite variation at the molecular, population, and evolutionary levels, this book is essential reading for students and researchers throughout biology and biomedicine. The author uses an evolutionary perspective to meld the terms and findings of molecular biology, immunology, pathogen biology, and population dynamics. This multidisciplinary approach offers newcomers a readable introduction while giving specialists an invaluable guide to allied subjects. Every aspect of the immune response is presented in the functional context of parasite recognition and defense--an emphasis that gives structure to a tremendous amount of data and brings into sharp focus the great complexity of immunology. The problems that end each chapter set the challenge for future research, and the text includes extensive discussion of HIV, influenza, foot-and-mouth disease, and many other pathogens. This is the only book that treats in an integrated way all factors affecting variation in infectious disease. It is a superb teaching tool and a rich source of ideas for new and experienced researchers. For molecular biologists, immunologists, and evolutionary biologists, this book provides new insight into infectious agents, immunity, and the evolution of infectious disease.

"[This] is a rich source of ideas for scientists working in immunology and molecular biology as well as evolution. . . . Newcomers are offered a comprehensive introduction to basic questions of immunology, as well as a synthesis that cuts across large areas of biology. Specialists will find detailed discussions of specific infectious agents from a highly original, evolutionary perspective, and inspiration for future research."--Franziska Michor and Martin A. Nowak, Nature"Frank's book, short and clearly written, can be read through with ease, and it will serve as an excellent introduction to infectious disease dynamics for final-year undergraduates and research students, and for those who attempt to bridge the gulf between mathematics and biology. It will be particularly useful as a stimulus for new research. . . . [F]or an integrated and digestible account of the role of antigenic variation in the immunology and evolution of microparasites, this book has few rivals, and is highly recommended."--Charles R. M. Bangham, Trends in Ecology and Evolution"This is the first volume to comprehensively survey the integration of evolution, epidemiology, ecology, genetics, and immunology of pathogen and host population. As such, it is a valuable resource for both students and researchers."--Allison P. Galvani, Quarterly of Biology"This book is definitely worth reading. Frank provides a thought-provoking and timely agenda of research questions in evolutionary immunology and parasitology that will undoubtedly stay relevant for many years to come."--Paul Schmid-Hempel, Science"This book should be read by anyone interested in the evolution of infectious disease, as well as by those interested in molecular evolution or in experimental evolution. . . . It will appeal broadly."--J.J. Bull and Dieter Ebert, Evolution"A valuable resource for both students and researchers. . . . This stimulating book makes an important contribution by bridging the gap between immunology and epidemiology."--Alison P. Galvani, Quarterly of BiologyFrom the Inside Flap"Steven Frank provides us with a profound insight into the Darwinian evolutionary dynamics between parasite and host, told from an immunological slant. It is essential reading to understand why infections cause disease."--Robin A. Weiss, Fellow of the Royal Society, Wohl Virion Centre, University College London "This book is a real gem. Very readable, it is a teaching and research text that will be widely adopted at both the undergraduate and graduate levels. It will also provide a wonderful source of ideas for researchers working on infectious diseases, population ecology, and evolutionary biology."--Roy Anderson, Fellow of the Royal Society, Imperial College, London "This is an extremely stimulating and hugely ambitious book. It distils key essentials from the ever increasing avalanche of largely undigested molecular and immunological data to answer important questions about the natural history of antigenic variation in an evolutionary context. Frank gives us the missing part of the field: what it all means. His synthesis cuts across large areas of modern biology and is just the sort of thing the field needs."--Andrew Read, University of EdinburghFrom the Back Cover"Steven Frank provides us with a profound insight into the Darwinian evolutionary dynamics between parasite and host, told from an immunological slant. It is essential reading to understand why infections cause disease."--Robin A. Weiss, Fellow of the Royal Society, Wohl Virion Centre, University College London"This book is a real gem. Very readable, it is a teaching and research text that will be widely adopted at both the undergraduate and graduate levels. It will also provide a wonderful source of ideas for researchers working on infectious diseases, population ecology, and evolutionary biology."--Roy Anderson, Fellow of the Royal Society, Imperial College, London"This is an extremely stimulating and hugely ambitious book. It distils key essentials from the ever increasing avalanche of largely undigested molecular and immunological data to answer important questions about the natural history of antigenic variation in an evolutionary context. Frank gives us the missing part of the field: what it all means. His synthesis cuts across large areas of modern biology and is just the sort of thing the field needs."--

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