

SECOND EDITION

ORIGIN AND EVOLUTION OF VIRUSES

Edited by
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New viral diseases are emerging continuously. Viruses adapt to new environments at astounding rates. Genetic variability of viruses jeopardizes vaccine efficacy. For many viruses mutants resistant to antiviral agents or host immune responses arise readily, for example, with human immunodeficiency virus and influenza. These variations are all of utmost importance for human and animal health as they have prevented us from controlling these epidemic pathogens and they have, as a common underlying basis, unique features of rapidly evolving molecular parasites. This book focuses on the mechanisms that viruses use to survive, evolve and cause disease in their hosts. Covering human, animal, plant, and bacterial viruses, it provides both the basic foundations for the evolutionary dynamics of viruses and specific examples of emerging diseases.

In addition, several mechanisms of the host response to viruses (editing activities in viral hypermutagenesis, RNA interference) and the broad impact of virus evolution in our biosphere (bacterial viruses in the sea, pathogenic and non-pathogenic plant viruses in agriculture, and symbiotic relationships, etc.) are examined from a medical and ecological perspective.

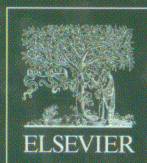
Key Features

- Includes methods to establish relationships among viruses and the mechanisms that affect virus evolution
- Combines theoretical concepts in evolution with detailed analyses of the evolution of important virus groups
- Compares bacterial, plant, animal, and human virus interactions with their hosts

Review of the Previous Edition

'...this book...is a detailed account of current thinking on virus evolution... Because of the diversity of subjects, this book gives an up to date picture of research in various fields of virology, and helps to tease out connections between these fields. The subjects covered are essential reading for virologists but also have direct relevance for molecular biologists, and indeed any researchers with interests in early evolution... This publication is highly recommended for its breadth of coverage and detailed treatments of the various subjects.'

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ACADEMIC PRESS

An imprint of Elsevier
elsevierdirect.com

ISBN 978-0-12-374153-0



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