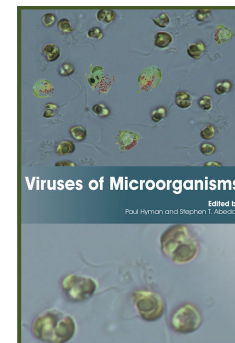


Viruses of Microorganisms



Edited by: Paul Hyman and Stephen T. Abedon

Department of Biology and Toxicology, Ashland University, Ashland, OH 44805, USA; Department of Microbiology, Ohio State University, Mansfield, OH 44903, USA

Published: September 2018. **Pages:** c. 450

ISBN: Book: 978-1-910190-85-2. Ebook: 978-1-910190-86-9 £199, \$400

Published by: Caister Academic Press www.caister.com

Viruses of microorganisms (VoMs) are the world's most abundant viruses. There are viruses for every known microbe and VoMs are usually described in terms of their hosts as algal viruses, archaeal viruses, bacteriophages, virophages, fungal viruses and protozoan viruses. A key feature of infection by VoMs is that they often kill the host. This allows VoMs to play a key role in modifying microbial communities and in nutrient cycling in various environments. When the host is itself a pathogen then VoMs may be exploited to create novel antimicrobial strategies. In fact phage therapy for a variety of antibiotic-resistant bacterial pathogens is currently at the clinical trial stage. When they don't kill the host, VoMs can still play important roles in the ecology and evolution of their hosts via various forms of virus-mediated horizontal gene transfer. Important in nature, these processes have also been used in the laboratory in genetic engineering techniques.

In this multi-authored volume, international experts review the genomics, ecology, comparative biology and biotechnological applications of these fascinating viruses. Chapters have extensive reference sections that should encourage readers to pursue each subject in greater detail.

This unique reference volume is a must-read for everyone working with VoMs, from the PhD student to the experienced scientist, in academia, the pharmaceutical or biotechnology industries and working in clinical environments.

Chapter 1. Viruses of Microorganisms: What are They and Why Care? (*Paul Hyman and Stephen T. Abedon*)

Chapter 2. Genomics of Viruses of Microorganisms (*Evelien M. Adriaenssens*)

Chapter 3. Evolutionary Ecology of the Viruses of Microorganisms (*Brian E. Ford, Marko Baloh and John J. Dennehy*)

Chapter 4. Viruses of Microorganisms in Soil Ecosystems (*Kurt E. Williamson*)

Chapter 5. Marine Viral Metagenomics with Emphasis on Coral Microbiomes (*Rebecca L. Vega Thurber Jérôme P. Payet, Lu Wang and Alec O. Eastman*)

Chapter 6. Virus Interactions in the Aquatic World (*Stéphan Jacquet, Xu Zhong, Peter Peduzzi, T. Frede Thingstad, Kaarle J. Parikka and Markus G. Weinbauer*)

Chapter 7. Bacteriophage Diversity (*Susan M. Lehman*)

Chapter 8. Viruses of Domain Archaea (*Stephen T. Abedon*)

Chapter 9. Fungal Viruses (*Eeva J. Vainio and Jarkko Hantula*)

Chapter 10. Diversity of Viruses Infecting Eukaryotic Algae (*Steven M. Short, Michael A. Staniewski, Y. V. Chaban, A. M. Long and D. Wang*)

Chapter 11. Protozoal Giant Viruses (*Dorine G. I. Reteno, Leena H. Bajrai, Sarah Aherfi, Philippe Colson and Bernard La Scola*)

Chapter 12. The Virophage Family *Lavidaviridae* (*Matthias G. Fischer*)

Chapter 13. Viruses of Microorganisms and Biotechnology (*Paul Hyman*)

Chapter 14. Viruses as Biocontrol Agents of Microorganisms (*Diana R. Alves, Jason Clark and Stephen T. Abedon*)

Chapter 15. Methods and Technologies to Assess Viral Interactions in the Aquatic World (*Stéphan Jacquet, Xu Zhong, Peter Peduzzi, T. Frede Thingstad, Kaarle J. Parikka and Markus G. Weinbauer*)

Order from:

Caister Academic Press <https://www.caister.com/order>

☞ **Porcine Viruses: From Pathogenesis to Strategies for Control**

Edited by: Hovakim Zakaryan (Published: 2019)

☞ ***Lactobacillus* Genomics and Metabolic Engineering**

Edited by: Sandra M. Ruzal (Published: 2019)

☞ **Cyanobacteria: Signaling and Regulation Systems**

Author: Dmitry A. Los (Published: 2018)

☞ **Viruses of Microorganisms**

Edited by: Paul Hyman and Stephen T. Abedon (Published: 2018)

☞ **Protozoan Parasitism: From Omics to Prevention and Control**

Edited by: Luis Miguel de Pablos Torr  and Jacob-Lorenzo Morales (Published: 2018)

☞ **Genes, Genetics and Transgenics for Virus Resistance in Plants**

Edited by: Basavaprabhu L. Patil (Published: 2018)

☞ **DNA Tumour Viruses: Virology, Pathogenesis and Vaccines**

Edited by: Sally Roberts (Published: 2018)

☞ **Pathogenic *Escherichia coli*: Evolution, Omics, Detection and Control**

Edited by: Pina M. Fratamico, Yanhong Liu and Christopher H. Sommers (Published: 2018)

☞ **Postgraduate Handbook: A Comprehensive Guide for PhD and Master's Students and their Supervisors**

Author: Aceme Nyika (Published: 2018)

☞ **Enteroviruses: Omics, Molecular Biology, and Control**

Edited by: William T. Jackson and Carolyn B. Coyne (Published: 2018)

"frontiers in the study of the 12 species of the genus" (ProtoView); "the current most important enterovirus research" (Biotechnol. Agron. Soc. Environ.)

☞ **Molecular Biology of Kinetoplastid Parasites**

Edited by: Hemanta K. Majumder (Published: 2018)

☞ **Bacterial Evasion of the Host Immune System**

Edited by: Pedro Escoll (Published: 2017)

"The figures are expertly drawn" (SIMB News)

☞ **Illustrated Dictionary of Parasitology in the Post-Genomic Era**

Author: Hany M. Elsheikha and Edward L. Jarroll (Published: 2017)

"a guide for students, academic staff, medical and veterinarian professionals" (ProtoView); "an extensive and comprehensive glossary of contemporary concepts, terminologies, and vocabulary in modern parasitology" (Doody's); "a pure pleasure to explore and discover" (Epidemiol. Infect.); "highly recommended" (Biotechnol. Agron. Soc. Environ.)

☞ **Next-generation Sequencing and Bioinformatics for Plant Science**

Edited by: Vijai Bhadauria (Published: 2017)

☞ **The CRISPR/Cas System: Emerging Technology and Application**

Edited by: Muhammad Jamal (Published: 2017)

"reviews recent advances" (ProtoView)

☞ **Brewing Microbiology: Current Research, Omics and Microbial Ecology**

Edited by: Nicholas A. Bokulich and Charles W. Bamforth (Published: 2017)

"a valuable information source ... an authoritative overview" (IMA Fungus); "a must read book" (SIMB News)

☞ **Metagenomics: Current Advances and Emerging Concepts**

Edited by: Diana Marco (Published: 2017)

"presents those new to the field with important aspects of metagenomics" (Eur. J. Soil Sci.)

☞ ***Bacillus*: Cellular and Molecular Biology (Third edition)**

Edited by: Peter L. Graumann (Published: 2017)

"a one-stop shop for a huge range of *Bacillus*-focused molecular biology" (Microbiology Today)