Introduction To Plant Viruses Elsevier

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Comprehensive and Molecular Phytopathology Academic Press
Virus Structure describes the physical characteristics of isolated viruses that represent typical structural groups, with particular reference to those features analyzed with the aid of the electron microscope. For descriptive purposes, the book has been divided into sections starting with the small icosahedral viruses and leading to the larger and more sophisticated structures, regardless of whether they are animal, plant, or bacterial viruses. These include double-stranded DNA icosahedral viruses, herpesvirus, viruses with helical symmetry, and viruses with complex or a combination of symmetries. Many common architectural features will be found in those viruses selected for discussion in each of the sections, and for these reasons the introduction places some emphasis on the symmetry elements rather than the shapes of viruses. The mechanism by which viruses enter host cells and the events that follow once the cell has been infected are only mentioned briefly as the virus-host interaction is a relatively complex one.
The Biochemistry of Plants Academic Press
Viroids and Satellites describes plant diseases and their causal agents while also addressing the economic impact of these diseases. The book discusses various strategies for state-of-the-art methods for the detection and control of pathogens in their infected hosts and provides pivotal information from the discovery of viroids through the analysis of their molecular and biological properties, to viroid pathogenesis, host interactions, and RNA silencing pathways. Students, researchers and regulators will find this to be a comprehensive resource on the topics presented. Provides coverage of the basic biological properties of disease, along with applied knowledge Features economic impacts, transmission, geographical distribution, epidemiology, detection, and control within each chapter Organizes viroid diseases by viroid taxonomy and viroid species
Plant Small RNA Academic Press
Aphids as Virus Vectors focuses on aphids as vectors of plant viruses and the fundamentals of their relationship with virus and host. The mouthparts and feeding mechanism of aphids are discussed, along with aphid penetration of plant tissues and the transmission mechanisms of aphids as virus vectors. The intrinsic properties and taxonomy of aphid-borne viruses are also examined. Comprised of 22 chapters, this book begins with an overview of the importance of aphids as vectors, their biology, and the properties of the viruses they transmit. These introductory chapters prepare the reader for later ones on aphid-virus-plant interactions. The next section deals with transmission mechanisms, with emphasis on several novel alternatives to many of the traditionally held concepts of how aphids transmit viruses. Accessory factors in non-persistent virus transmission are considered. Subsequent chapters focus on technological advances in aphid-virus research, including the use of aphid cell culturing, radioisotope methodology, membrane feeding, and electrical measurement systems. The most promising frontiers in epidemiological and control-oriented research are discussed in the last two sections. This monograph will be a useful resource for researchers from such varied sciences as entomology, plant science, and virology, as well as for graduate students taking entomology and plant pathology courses on insects in relation to plant diseases.
Control of Plant Virus Diseases Gulf Professional Publishing
In Virus-Insect-Plant Interactions, the world's leading scientists discuss the latest breakthroughs in understanding the biological and ecological factors that define these complex transmission systems and how this knowledge might be used to our advantage in producing innovative, user and environmentally friendly approaches to controlling the spread of plant pathogens by insects. This is an invaluable reference work for researchers, teachers, and students. There are many quick-reference figures and tables, the contents pages include individual chapter abstracts, and each chapter ends with its own bibliography. Presents the most significant research breakthroughs of the past two decades Contains eighteen chapters by forty-two world-renowned researchers Invaluable reference work for researchers, teachers and students Each chapter ends with its own bibliography Contents pages of forematter include individual chapter abstracts Contains many quick-reference figures and tables
Comparative Virology Elsevier
The first review series in virology and published since 1953, Advances in Virus Research covers a diverse range of in-depth reviews, providing a valuable overview of the field. The series of eclectic volumes are valuable resources to virologists, microbiologists, immunologists, molecular biologists, pathologists, and plant researchers. Volume 91 features articles on control of plant virus diseases. Contributions from leading authorities Comprehensive reviews for general and specialist use First and longest-running review series in virology
Aphids as Virus Vectors Elsevier

Serology and Immunochemistry of Plant Viruses investigates the antigenic properties of plant viruses. It looks at the practical aspects of plant virus serology, along with the molecular basis of viral antigenicity, antigenic determinants in proteins, the structure of antibodies, virus purification, antiserum production, and the theoretical principles and practical implementation of the various serological techniques. It also considers the problems associated with identification and classification of plant viruses. Organized into 10 chapters, this volume begins with an overview of antigens and antigenic determinants before proceeding with a discussion of the immunochemistry of plant viruses, virus-antibody binding, the role of quaternary structure in antigenicity, and the structure of viral antigenic determinants. The reader is also introduced to the methods and principles of purifying plant viruses, preparation of antisera and purification of antibodies, antigen-antibody interaction, immunochemical techniques used with plant viruses, the role of quaternary structure on viral antigenicity, diagnosis of virus diseases, use of serological criteria for measuring the degree of relationship between viruses, and immunochemical studies of plant viruses. The book includes a bibliography with 1,400 references and a list of all the plant viruses that have been studied by serology. This book will be a useful resource for virologists and plant pathologists, as well as for students and research workers in plant virology, plant pathology, microbiology, and general virology.

Environmental Virology and Virus Ecology Academic Press

Plant Small RNA: Biogenesis, Regulation and Application describes the biosynthesis of small RNA in plant systems. With an emphasis on the various molecular mechanisms affected by small RNA and their applications in supporting plant growth and survival, this books presents the basics and most recent advancements in small RNA mediated plant genomics, metabolomics, proteomics and physiology. In addition, it emphasizes the various molecular mechanisms affected by small RNA and their applications in supporting plant growth and survival. Final sections cover the most recent advancements in small RNA mediated plant genomics, metabolomics, proteomics and physiology. Presents foundational information about small RNA biology and regulation in plants Includes small RNA pathway advances Describes the application and scope of small RNA technology for agricultural stability

Virus Taxonomy Academic Press

Nanotechnology-based Sustainable Alternatives for the Management of Plant Diseases addresses the power of sustainable nanomaterials for plant and food protection. The book highlights dangers arising from bacteria, fungi, viruses, insects, seeds, plants, fruits and food production and summarizes new and sustainable strategies. It places a particular focus on plant pathogen control, and in the food packaging sector in agri-food applications. The control of plant pathogens in plants and in food has been conventionally made by adding chemical preservatives and by using thermal processing, but sustainable nanotechnology can be a power tool to aid in this complex set of challenges. Advances in materials science have led to the rapid development of nanotechnology that has great potential for improving food safety as a powerful tool for the delivery and controlled release of natural antimicrobials. Analyzes and lays out information related to sustainable strategies, taking a nano-based approach to the management of plant diseases and biotic damage on fresh food Presents the latest discoveries and practical applications of nanotechnology based, sustainable plant protection strategies to combat dangerous microorganisms and improve the shelf-life of food Assesses the major challenges of manufacturing nanotechnology-based pesticides on a mass scale

Emerging and Reemerging Viral Pathogens Elsevier

Environmental Virology, Volume 101, the latest in the Advances in Virus Research series, contains new, informative updates on the topic. First published in 1953, this series covers a diverse range of in-depth reviews, providing a valuable overview of the current field of virology. Updates to this release include sections on the host landscape and vector behavior, key determinants of plant virus evolution and emergence, plant virome analysis using spatial metagenomics, host range evolution in generalist viruses, the influence of environment, water-mediated spread and transmission of viruses, viruses transmitted by means other than insect vectors, and more. Contains contributions from leading authorities in the field of virology Informs and updates on all the latest developments in the field Features a diverse range of virology topics, including discussions of host landscape and vector behavior and viruses transmitted by means other than insect vectors

Plant Virology Elsevier

The seminal text Plant Virology is now in its fifth edition. It has been 10 years since the publication of the fourth edition, during which there has been an explosion of conceptual and factual advances. The fifth edition of Plant Virology updates and revises many details of the previous edition while retaining the important earlier results that constitute the field's conceptual foundation. Revamped art, along with fully updated references and increased focus on molecular biology, transgenic resistance, aphid transmission, and new, cutting-edge topics, bring the volume up to date and maintain its value as an essential reference for researchers and students in the field. Thumbnail sketches of each genera and family groups Genome maps of all genera for which they are known Genetic engineered resistance strategies for virus disease control Latest understanding of virus interactions with plants, including gene silencing Interactions between viruses and insect, fungal, and nematode vectors Contains over 300 full-color illustrations

Genetics and Evolution of Infectious Diseases Academic Press

The first review series in virology and published since 1953, Advances in Virus Research covers a diverse range of in-depth reviews, providing a valuable overview of the field. The series of eclectic volumes are valuable resources to virologists, microbiologists, immunologists, molecular biologists, pathologists, and plant researchers. Volume 90 features articles on control of plant virus diseases. Contributions from leading authorities Comprehensive reviews for general and specialist use First and longest-running review series in virology

Applied Plant Genomics and Biotechnology Academic Press

Genetics and Evolution of Infectious Diseases, Second Edition, discusses the constantly evolving field of infectious diseases and their continued impact on the health of populations, especially in resource-limited areas of the world. Students in public health, biomedical professionals, clinicians, public health practitioners, and decisions-makers will find valuable information in this book that is relevant to the control and prevention of neglected and emerging worldwide diseases that are a major cause of global morbidity, disability, and mortality. Although substantial gains have been made in public health interventions for the treatment, prevention, and control of infectious diseases during the last century, in recent decades the world has witnessed a worldwide human

immunodeficiency virus (HIV) pandemic, increasing antimicrobial resistance, and the emergence of many new bacterial, fungal, parasitic, and viral pathogens. The economic, social, and political burden of infectious diseases is most evident in developing countries which must confront the dual burden of death and disability due to infectious and chronic illnesses. Takes an integrated approach to infectious diseases Includes contributions from leading authorities Provides the latest developments in the field of infectious disease

The Viruses Academic Press

Comparative Virology provides an integrated comparison of viruses, based on their chemical and morphological characteristics. These descriptions will not only give the reader a background but also a detailed analysis of the various groups. In some instances the groups are still host related, as in the case of bacteriophages and polyhedral insect viruses. In others, for instance in pox viruses, the group comprises viruses of vertebrates and invertebrates. The hosts of the bacilliform Rhabdovirales range from man and other warm-blooded vertebrates through invertebrate animals to plants. A special chapter is devoted to viruses devoid of protein—a group that is of great interest and that has only recently been recognized. Since there is historical and practical interest in écologie groupings, such as arboviruses and oncogenic viruses, chapters on such groups have also been included. The book opens with a discussion on the classification of viruses. Chapters dealing with DNA viruses and RNA viruses follow, and the ecologically and disease-oriented groups complete the volume. It is hoped that ""Comparative Virology"" will help bring unity to the science of virology through the comparative approach that is not dependent on virus-host interactions. The combined efforts of eminent contributors to discuss and evaluate new information will hopefully benefit all who are interested in virology

Serology and Immunochemistry of Plant Viruses Academic Press

Membranes and Viruses in Immunopathology covers the proceedings of the 1972 symposium by the same title, held at the University of Minnesota Medical School, sponsored by the Bell Museum of Pathology. This book is composed of 40 chapters that highlight the significant advances in fundamental experiments of membrane structure chemistry. Considerable chapters explore the diagnosis and analysis of slow and oncogenic virus infections, as well as the role of immunobiologic processes in the pathogenesis, prevention, and treatment of disease. The remaining chapters contain research works on the detailed mechanisms that may contribute to cancer induction and dissemination. This book will prove useful to immunopathologists and practicing physicians.

Seed-Propagated Crops Elsevier

Published since 1953, Advances in Virus Research covers a diverse range of in-depth reviews providing a valuable overview of the current field of virology. The impact factor for 2006 is 3.48 placing it 7th in the highly competitive category of virology.

Emerging and Reemerging Viral Pathogens Butterworth-Heinemann

This book offers a collection of information on successive steps of molecular ‘dialogue’ between plants and pathogens. It additionally presents data that reflects intrinsic logic of plant-parasite interactions. New findings discussed include: host and non-host resistance, specific and nonspecific elicitors, elicitors and suppressors, and plant and animal immunity. This book enables the reader to understand how to promote or prevent disease development, and allows them to systematize their own ideas of plant-pathogen interactions. * Offers a more extensive scope of the problem as compared to other books in the market * Presents data to allow consideration of host-parasite relationships in dynamics and reveals interrelations between pathogenicity and resistance factors * Discusses beneficial plant-microbe interactions and practical aspects of molecular investigations of plant-parasite relationships * Compares historical study of common and specific features of plant immunity with animal immunity

Nanotechnology-Based Sustainable Alternatives for the Management of Plant Diseases Woodhead Publishing

Principles of Plant Infection investigates interactions among pathogens, host plants, the environment, time and space, and their role in plant infection. It describes the principles of infection, particularly of the root, stem, or leaf, as they apply to fungi, bacteria, or viruses. It also highlights the dual nature of resistance and suggests theories of host resistance. Organized into seven chapters, this volume begins with an overview of the relation between the amount of inoculum and the amount of disease it causes. It then turns to a discussion of the disease/inoculum relations of tobacco mosaic virus; how obligate synergism restricts the transmission of pathogens; disease/inoculum relations in root disease; the independent action of spores as inoculum; variable factors other than the amount of inoculum that affect plant disease; and time as a determining factor of the degree of plant infection. The reader is also introduced to endemic disease of plants, the implications of endemicity for plant resistance to disease, the spread of disease via migration of pathogens, and the genetics of host-pathogen interactions. Plant pathologists and plant breeders will gain valuable information from this book.

Molecular Biology, Host Interactions, and Applications to Biotechnology Academic Press

It has been ten years since the publication of the third edition of this seminal text on plant virology, during which there has been an explosion of conceptual and factual advances. The fourth edition updates and revises many details of the previous editon, while retaining the important older results that constitute the field's conceptual foundation. Key features of the fourth edition include: * Thumbnail sketches of each genera and family groups * Genome maps of all genera for which they are known * Genetic engineered resistance strategies for virus disease control * Latest understanding of virus interactions with plants, including gene silencing * Interactions between viruses and insect, fungal, and nematode vectors * New plate section containing over 50 full-color illustrations

Virus Structure Academic Press

The problems of virology. Structural and chemical architecture of host cells with special reference to the synthesis of polymers. The physical properties of infective particles. Quantitative relationships between virus particles and their functional activity. Inactivation of viruses. The chemical basis of the infectivity of tobacco mosaic virus and other plant viruses. The comparative chemistry of infective virus particles and their functional activity: T2 and other bacterial viruses. The comparative chemistry of infective virus particles and of ther virus-specific products: animal viruses. Biochemistry of insect viruses. The scope and limitations of immunological methods in the characterization and functional study of viruses. The reproduction of viruses: a comparative survey. The process of infection and virus synthesis with tobacco mosaic virus and other plant viruses. The biochemistry of

plant viruses. Variation and its chemical correlates. Biological cycles of plant viruses in insect vectors. Bacteriophage as a model of host-virus relationship. The initiation of bacteriophage infection. Intracellular multiplication of bacterial viruses. Bacteriophage genetics. Lysogeny. Radiobiology of bacteriophage.

Volume 2: Applied Virology Approaches Related to Human, Animal and Environmental Pathogens Academic Press

The Biochemistry of Plants: A Comprehensive Treatise, Volume 6: Proteins and Nucleic Acids provides information pertinent to the nucleic acids and the regulation of the expression of this information. This book presents the processes by which the nucleic acids are finally expressed as proteins. Organized into 14 chapters, this volume begins with an overview of the overall structure of eukaryotic genomes, with emphasis on higher-plant DNA. This text then examines the enzymes involved in the cleavage and degradation of DNA. Other chapters provide a critical assessment of eukaryotic nucleic acid polymerases. This book discusses as well some examples from plant mitochondrial systems. The final chapter deals with two special areas of plant biology where the expression of the nucleic acids is seen in striking relief, the formation of plant tumors, and the growth and expression of plant viruses. This book is a valuable resource for plant biochemists, molecular biologists, senior graduate students, and research workers.