

Book reviews

Immunobiology of Infection with Herpes Simplex Virus

by H. Kirchner

Monographs in Virology, Vol. 13

J.L. Melnick (ed.)

S. Karger, Basel, 1982

Prof. Kirchner reviews and discusses in an organized fashion evidence from both clinical and experimental studies on the interaction between herpes viruses and the immune system.

Undoubtedly, immunobiological studies have provided clues to several important questions in herpes virus pathology. However, understanding of the central mystery of latency and recurrence of herpes viruses has not gained so much from the immunobiological approach. Perhaps some of the more novel hybrid disciplines, such as neuro-immunology and neuro-endocrinology, will bring us the answers. In particular, in reading this review, one is struck by the fact that virtually no work has been done on the possible effects that hormonal status (menstruation, menopause, ageing, etc.) may exert, via the immune system, on herpes virus pathology.

Neuro-immunology, on the other hand, may make the link between molecular events in the viral genome-containing cell and recurrence-triggering events that are at play at the physiological level. This review shows that a lot of ground has been covered but that the big finds have still to be made.

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Double-Stranded RNA Viruses

by Richard W. Compans and David H.L. Bishop (eds.)

Proceedings of the First International Symposium on Double-Stranded RNA Viruses, held October 5–10, 1982, at Frenchman's Reef, St. Thomas, U.S. Virgin Islands
Elsevier Biomedical, Amsterdam, New York, Oxford

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The first two parts of this book give a good outline of how molecular cloning is improving knowledge on the genomic structure of such dsRNA viruses as Reovirus, Cytoplasmic Polyhedrosis Virus, Bluetongue Virus, Rotaviruses and Infectious Pancreatic Necrosis Virus. Also the use of molecular probing to classify serotypes is

highlighted, especially in the case of Rotaviruses, where epidemiologic studies seem to have suffered from the inadequacy of the electrophoretic analysis of the virion RNAs which was to-date the method of choice to distinguish isolates. It is also clear that the sequencing of the genomic fragments is on the verge of revealing a wealth of information on the signals which regulate transcription, translation, packaging, etc.

The second part deals with progress in various aspects of protein chemistry: localisation and function of glycoproteins in the outer shell; polymorphism of interior shell protein (different group antigens in Rotaviruses); phosphorylation which binds mRNA; ribosylation of viral proteins as a prerequisite for assembly; identification of the protein which mediate mRNA formation; regulation of mRNA translation in control and interferon-treated cells; mechanisms of translation on the polycistronic mRNAs of the bisegmented Birnaviruses.

Part III (Genetics) demonstrates recent progress in assigning functions to the different genome segments. Reassortment analysis for naturally occurring strains and mutants have allowed to assign various functions to 9 out of the 11 segments of the Rotaviruses. Antigenic drift and shift of Bluetongue viruses is documented.

Part IV (Biology) covers a diversity of subjects relating to Rotaviruses (cocirculation of different strains during outbreaks, detectable by oligonucleotide mapping of isolates), the orbivirus genus, mainly Bluetongue virus (taxonomy, host responses, spread amongst animal species, endemicity), the mechanism of cell fusion caused by some Reoviruses, intracellular events during replication of cytoplasmic polyhedrosis virus, the genetic control of transmissibility of wound tumor virus and a group of dsRNA viruses called provisionally "cryptic viruses of plants" which are transmitted by seeds only and cause no pathological phenomena.

Part V (Phage; Yeast; and Mycoviruses) has 7 papers with rather disparate subjects:

- Isolation of mutants of bacteriophage $\phi 6$, possibly allowing to further characterize replicative intermediates and proteins involved in replication.
- Biology and transmission of a group of pathogenic mycoviruses.
- Cloning of cDNA homologous to a dsRNA virus from *Saccharomyces cerevisiae*.
- Attribution of a reduced virulence phenotype of an ecologically important chestnut fungal pathogen to a dsRNA.
- Several studies (RNA structure, gene expression, regulation, posttranslational processing and secretion) on the molecular biology of fungal killer viruses, i.e. cytoplasmically inherited viruses which cause cells harboring them to produce toxins which are lethal to other cells not harboring these viruses.

The main quality of this book is that it provides, in concisely written papers, a comprehensive overview of the current knowledge of and research on the diplomnaviruses. It nicely demonstrates how the genetic structure of these viruses provides the substratum for a wealth of interesting biological phenomena spanning such widely diverse cells as plant cells, fungi, yeasts, bacteria and animal cells. As a non-specialist, I found this book interesting reading, not the least because it is an example of what the Proceedings of a meeting should be: a clear, concise and well-ordered report of current thinking in a research area. Also for the specialist in diplomnaviruses, this book will be a source of useful information for several years to come.

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