BIBLIOGRAPHY

Books Received

Progress in Medical Virology, volume 38

This volume of the successful series “Progress in Medical Virology” spans a wide spectrum of reviews on recent research relating to herpesviruses, polioviruses, influenza viruses and HIV.

Bruggeman and van Dam Mieras discuss the possible role of cytomegalovirus (CMV) in the pathogenesis of atherosclerosis. In 1983, Melnick et al. found CMV antigen in tissue-culture cells derived from smooth muscle cells of arterial walls; later, CMV DNA and antigen were also detected in the coronary arteries of patients without atherosclerosis. No CMV replication could be demonstrated. Experimental infection of endothelial cells with viruses of the herpes family increased adherence of granulocytes. Overall, at this stage the experimental evidence does not seem to be sufficient to support a secured causal relationship between viral endothelial infection and the development of atherosclerosis.

The construction and initial use of pseudorabies virus (PRV) deletion mutants as vaccines in pigs are described by S. and M. Kit. Whereas challenge virus was found replicating intranasally in both vaccinated and control pigs, it was only found in the internal organs of controls. Differential diagnostic kits are described which allow vaccinated animals to be distinguished from those infected with field strains. A section on cell-mediated immunity response is loosely appended to this chapter but its informative value is rather limited. A concluding section, outlining lessons to be learned from PRV vaccines for the development of a human HSV-2 vaccine, is useful but its inclination towards live attenuated vaccines has to be considered critically.

D. I. Bernstein reviews the evidence which suggests that genital HSV 2 infection is significantly attenuated by previous HSV 1 infection. Unfortunately, as yet, no serious attempts seem to have been made to unravel the molecular mechanism(s) of this phenomenon.

A chapter by Inoue provides an update on recent advances in the characterisation of the Inoue Melnick virus, originally obtained from meningioma and colorectal carcinoma cell lines. The virus is apparently a member of the herpesvirus family but there seems to be a remarkable lack of molecular data to support this classification.

Geelen and Goudsmit describe the elements of pathogenesis following infection with HIV on the basis of molecular events. Different cell types can be infected in vivo via various receptors (CD4 and non-CD4) and may become HIV reservoirs. Different HIV variants (quasi-species) can be isolated at varying stages of infection and at different frequencies. There is more recent evidence that parts of the env gene products of certain variants may determine tissue tropism. Acute and chronic HIV infection are described as seemingly separate entities which is slightly confusing. The significance of large amounts of unintegrated HIV cDNA persisting during infection remains unclear. Unfortunately, the influence of various regulatory elements on HIV gene expression is dealt with in a rather rudimentary way.

The “programme of global eradication of poliomyelitis by the year 2000”, declared by the WHO in 1985, is reviewed by Lemon and Robertson. This will be carried out as part of the “expanded programme of immunization” (EPI) which focuses its efforts on six preventable diseases: diphtheria, pertussis, tetanus, tuberculosis, measles and poliomyelitis. Strategies and problems of vaccination against poliomyelitis are discussed lucidly. A mention of the prospects of vaccine viruses constructed from cDNA clones would have been useful. This chapter overlaps slightly with Hovi outlining the problems which form obstacles to polio eradication (partial immunity, survival of virus particles, vaccine stability, revertance to virulence, antigenic variation, etc).

Polioviruses “made to order” are discussed in the excellent chapter on “Antigen chimaeras of poliovirus” by Burke, Almond and Evans. Intertypic poliovirus chimaeras and poliovirus-foreign antigen chimaeras are described. The analysis of conformational antigenic sites is mentioned and the potential of these powerful techniques to elucidate determinants of pathogenicity is outlined.

A chapter by Rothbart covers the molecular techniques for rapid enteroviral diagnosis, concentrating on hybridisation of radiolabelled probes to denatured RNA, but also briefly mentioning the polymerase chain reaction. The author recommends applying this technology as a rapid diagnostic tool but the clinical context is of paramount importance if the finding of viral nucleic acid is to provide the diagnosis of acute infection.

In an article on influenza viruses, Oxford reports on the genomic and antigenic variability of influenza viruses isolated during community epidemics and describes differences in the antigenicity of influenza viruses of identical source depending on whether they were propagated in embryonated hen’s eggs or in MDCK cells. “Cell-grown” rather than “egg-grown” viruses seem to represent the viruses mainly replicating in man. Data from the author’s group and from others indicate that these different viruses are in essence receptor mutants and the finding that a virus of the antigenicity of the cell-grown virus could also grow in eggs confirms this conclusion. This new virus, on which the development of a new vaccine is based, still awaits detailed characterisation. The claim, in a separate section, that the virulence of an influenza B virus is strongly determined by a single-amino-acid change at the tip of the HA molecule seems to be premature as back crosses have yet to be carried out.

In summary, this volume contains reviews of a number of virological topics which not only represent accepted knowledge but also lead the reader into more remote corners of the field, which contributes to the attraction of the book. Principle readers will be clinical virologists, interested physicians and research workers in various areas of biomedical science.

U. DIESSELBERGER