BOOKS RECEIVED

Mechanisms of viral pathogenesis. From gene to pathogen

Edited by A. KOHN and P. FUCHS. 1984. Martinus Nijhoff Publishing, The Hague, The Netherlands. Pp. xxi and 329. £36.50.

This book comprises a collection of papers given at an OHOLO conference in Israel in March of last year. The fact that it is published 9 months after the conference should mean that the work is recent, allowing for the mechanics of publishing. The book endeavours to bridge the gap between the molecular virologist and the "steam age" virologist (i.e., those investigating interactions of whole cells and virions, no disrespect intended) by attempting to assign to individual genes or constellations of genes properties that allow a virus to become a pathogen.

Some of the chapters are not worth the printing as they are only abstracts half a page in length and give little information. A glaring omission is any discussion of reoviruses with which much work has been done to relate the properties of virulence and tissue tropism to the different double stranded RNA segments found in various strains. However, D. H. L. Bishop and colleagues deal with bunyaviruses, describing how reshuffling of genomic segments effects changes in virulence and how genes coding for bunyavirus surface glycoproteins determine neurovirulence; just how the glycoproteins achieve this capacity for virulence is unknown. Other viruses may operate differently in producing neurological disease, and M. J. Carter and colleagues and E. Norrby and colleagues discuss measles virus and subacute sclerosing panencephalitis. In this persistent neurological infection, the M (Matrix) protein gene may either not be transcribed to produce mRNA or fail to be translated, leading to confusion of the immune response.

Of course, viruses have to infect cells before they can cause cellular alterations and disease. Chapters by J. J. Shekel and colleagues, by P. N. Choppin and by R. Roff and colleagues describe how post-translational events, such as cleavage of haemagglutinins in myxoviruses and the formation of the fusion protein (F) in paramyxoviruses, are essential for infectivity. P. Coulon and colleagues describe changes in rabies virus glycoproteins (point mutations), detected by monoclonal antibodies, that reduce the virulence of these viruses; little is known of the initiation events, and the virulence appears to be dependent on the hosts' altered immunological response to the changed surface glycoproteins, with increased natural killer cell activity and interferon production. This illustrates the important part played by the host or cells in the pathogenesis of virus infection, and Y. Aloni, in a very good opening chapter on attenuation in the control of gene expression in eukaryotic cells, suggests that host specific, or tissue specific, regulatory factors affect the expression of a gene. E. Canaani and colleagues give a possible example of this in the oncogenes found in normal cells, which, when activated by translocations or rearrangements or both, produce changes in cellular metabolism.

This book is a brave attempt at discussing viral pathogenesis from gene to pathogen and shows that we are only scratching the surface.

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