

BOOK REVIEW

STRUCTURE-FUNCTION RELATIONSHIPS OF HUMAN PATHOGENIC VIRUSES

A. Holzenburg and E. Bogner (Eds): Structure-Function Relationships of Human Pathogenic Viruses. Kluwer Academic/Plenum Publishers, New York, 2002, 528 pp.

This book is dedicated to the description of fundamental processes involved in virus life cycles. As each virus represents specific maturation pattern and strategy against the host immune response, the editors chose contributions covering the entire spectrum of viruses inclusive of prions.

There are 7 sections containing 16 chapters written by researchers who are experts in their respective fields. Individual sections encompass seven themes: cell entry and egress, viral replication, viral determinants for capsid formation and packaging, determinants for viral maturation, pathogenesis, viral oncogenesis, and defense mechanisms.

The section on cell entry and egress (two chapters) deals with the role of Epstein-Barr virus (EBV)-glycoproteins in the virus infection and with the fine structure and function of influenza virus hemagglutinin (HA) glycopolypeptide HA2 and Human immunodeficiency virus 1 (HIV-1) gp41, in membrane fusion. The section on viral replication (two chapters) covers the structure-function relationships of RNA polymerases in general and HIV-1 reverse transcriptase in particular. Also the relationship of formation of virus nucleocapsid to virus replication on the example of Marburg virus is discussed. The section on viral determinants for capsid formation and packaging (three chapters) contains details about the role of virus-encoded proteins involved in the maturation of Measles virus,

Varicella-zoster virus and filoviruses (members of the family *Filoviridae*). The section on pathogenesis begins with prions, which cause diseases in humans and animals and attract recently great interest in scientific as well as political circles. Another chapter describes how the structure of HIV-1 affects its pathogenicity and why the proteolytic activation of HA is a major factor in the pathogenicity of influenza A viruses. The section on viral oncogenesis deals with interaction of E5 and E7 proteins of human papillomaviruses with cellular proteins, and with the pathogenesis of rhadinoviruses (members of the genus *Rhadinovirus*, e.g. Kaposi's sarcoma-associated herpesvirus. The last section (Defense mechanisms) covers immune escape mechanisms exploited by cytomegaloviruses (members of the genus *Cytomegalovirus*), focusing on down regulation of MHC class I molecules and inhibition of the transporter associated with antigen processing (TAP)-mediated peptide transport.

What is unavoidable in such a rapidly developing field is that the book in some respects is already outdated as it appears in printed form. Nevertheless, in its current form the book offers a wealth of information and provides a valuable foundation for advanced undergraduate, graduate and postgraduate students of medicine and microbiology, and senior investigators who wish to become familiar with the current trends in the research of human pathogenic viruses.

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