

Molecular Virology and Control of Flaviviruses



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Abstract

Flaviviruses are a diverse group of small RNA enveloped viruses, many of which are important human and animal pathogens. The best known include dengue virus, yellow fever virus, Japanese encephalitis virus, and West Nile virus. These viruses are endemic in many tropical and sub-tropical regions of the world. Dengue virus alone infects over 100 million people annually. In recent years, research on flaviviruses has progressed at a remarkable rate, leading to significant advances in our understanding of virus biology. This should ultimately lead to the development of better vaccine and antiviral strategies. This up-to-date and cutting-edge anthology contains contributions from the leading experts in the flavivirus field. Chapters are balanced by contributions from established investigators who have dedicated their careers to flavivirus research with those from newcomers who have recently made significant contributions to the flavivirus field. The book is divided into two sections: Molecular Virology and Virus Prevention. The first section on Molecular Virology covers: virion structure virus replication the NS1 glycoprotein the NS3 protein the NS5 protein innate immunity and flavivirus infection host responses to flavivirus infection flavivirus fitness and transmission. The Virus Prevention section includes: vaccines antibody therapy small molecule antiviral development flavivirus diagnostics vector-virus interactions vector control. The book represents an important update of flavivirus research and will serve as a reference to flavivirus researchers at the graduate level and beyond. It is a recommended text for all virology libraries.

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Molecular systematics of the flaviviruses and their relatives Molecular basis of virus evolution. Gibbs A., Calisher C. H., Garcia-Arenal F. 1995 270 289 Cambridge University Press Cambridge, England. 4.↵. A comparison of the nucleotide sequences of eastern and western equine encephalitis viruses with those of other alphaviruses and related RNA viruses. Virology 197 1993 375 390. OpenUrl CrossRef PubMed. 51.↵. 1 Institute of Virology, University of Vienna, Austria. PMID: 1333320. DOI: 10.1007/978-3-7091-5633-9_35. Abstract. Currently available sequence information suggests that the genome organization of hepatitis C virus is similar to that of flaviviruses. The structural region of the hepatitis C virus appears to consist of a capsid protein which is larger than that of flaviviruses and two putative envelope proteins which are presumably different in molecular weight and much more heavily glycosylated than their counterparts in flaviviruses. A study group of the International Committee on the Taxonomy of viruses proposes to include hepatitis C virus as a genus into the family 'flaviviridae'. Flaviviruses are a diverse group of small RNA enveloped viruses, many of which are important human and animal pathogens. The best known include dengue virus, yellow fever virus, Japanese encephalitis virus, and West Nile virus. These viruses are endemic in many tropical and sub-tropical regions of the world. Dengue virus alone infects over 100 million people annually. The book is divided into two sections: Molecular Virology and Virus Prevention. The first section on Molecular Virology covers: virion structure * virus replication * the NS1 glycoprotein * the NS3 protein * the NS5 protein * innate immunity and flavivirus infection * host responses to flavivirus infection * flavivirus fitness and transmission.