Retroviruses

Molecular Biology, Genomics and Pathogenesis

Retroviruses constitute a diverse family of enveloped RNA viruses, remarkable for their use of reverse transcription of viral RNA into linear double-stranded DNA during replication and the subsequent integration of this DNA into the genome of the host cell. Members of this family include important pathogens such as HIV-1, feline leukaemia virus, and several cancer-causing viruses. However, interest in these viruses extends beyond their disease-causing capabilities. For example, research in this area led to the discovery of oncogenes, a major advance in the field of cancer genetics. Studies of retroviruses have contributed greatly to our understanding of the mechanisms that regulate eukaryotic gene expression. In addition, retroviruses are proving to be valuable research tools in molecular biology and have been used successfully in gene therapy (for example, to treat X-linked severe combined immunodeficiency).

Written by the top retroviral specialists, this book reviews the genomics, molecular biology and pathogenesis of these important viruses, comprehensively covering all the recent advances. Topics include host and retroelement interactions, endogenous retroviruses, retroviral proteins and genomes, viral entry and uncoating, reverse transcription and integration, transcription, splicing and RNA transport, pathogenesis of oncoviral infections, pathogenesis of immunodeficiency virus infections, retroviral restriction factors, molecular vaccines and correlates of protection, gammaretroviral and lentiviral vectors, non-primate mammalian and fish retroviruses, simian exogenous retroviruses, and HTLV and HIV.

Essential reading for every retrovirologist and a recommended text for all virology and molecular biology laboratories.

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