

Retroviruses

Molecular Biology, Genomics and Pathogenesis



Edited by: Reinhard Kurth and Norbert Bannert

Robert Koch-Institut, 13353 Berlin, Germany

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Retroviruses comprise 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 leukemia, 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 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 (e.g. 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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