

Retroviral Insertion and Oncogene Activation; 2012; Springer Science & Business Media, 2012; Hsing-Jien Kung, Peter K. Vogt; 179 pages; 9783642765247

Insertions of retroviral sequences The c-myc gene has three exons (E1, E2, E3), E1 representing the first untranslated (but transcribed) leader sequence, and the remaining two coding for c-myc protein. Following three classes of insertions in c-myc gene are known (Fig. 45.5). Chromosomal translocations leading to activation of proto-oncogenes In some cancerous cells; chromosomal translocations have been discovered, where an oncogene of one chromosome is brought into the proximity of an Ig locus on another chromosome (e.g. plasmacytomas in the mouse and Burkitt lymphomas in man). Such translocations lead to activation of a proto-oncogene like c-myc (Fig. 45.5), which is located on chromosome 8 in humans and on chromosome 15 in mouse. 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 Insertional activation of host proto-oncogenes has been recognized as a basic mechanism by which nonacute retroviruses induce cancer. Our previous work has demonstrated that retroviruses can efficiently integrate into DNA virus genomes. Specifically, coinfection of cultured fibroblasts with a chicken herpesvirus, Marek's disease virus (MDV), and a chicken retrovirus results in frequent stable retroviral insertions into the herpesvirus genome. In this article, we report the characterization of a replication-competent clone of MDV with integrated retroviral sequences. This virus was isolated from a chicken following injection of fibroblasts coinfecting with MDV and the retrovirus, reticuloendotheliosis virus.