

CTMI 217 – Current Topics in Microbiology and Immunology

V(D)J recombination and heavy chain gene class switching constitute the two major DNA recombination processes, complemented by somatic hypermutation, which generate the antigen receptor repertoire of the immune system. This volume describes recent research breakthroughs and offers a comprehensive overview.

Recently, important steps towards the molecular understanding of both, V(D)J and class switch recombination, have been reported. These advances include the identification of several individual proteins acting at the initial steps in V(D)J recombination, and detailed insights into the formation and structure of recombination intermediates. The analysis of a series of rodent mutants, defective in general double-strand break repair and V(D)J recombination has contributed significantly to this progress, as has the establishment of a cell-free system to study V(D)J recombination. The molecular investigation of class switch recombination, though lagging behind in depth of detailed knowledge, got fresh input from the creation of in vivo and in vitro assays and attempts to isolate factors involved in this process. The book also includes a description of the third mechanism involved in increasing the antigen receptor diversity, somatic hypermutation, which has attracted renewed attention.

ISB N 3-540-61037-5



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