T-Cell Receptor

National Cancer Institute

Source

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Heterodimeric antigen receptors present on the surface of T-cells. Two T-cell antigen receptors have been identified, consisting of heterodimeric 40-55 kD Ig-like alpha/beta or gamma/delta integral membrane glycoproteins. Genes for TCR alpha, beta, gamma, and delta subunits are assembled during T-cell development by somatic rearrangement of germline gene segments, resembling B-cell Ig genes in their mechanisms of diversity generation and activation of expression. Alpha/beta heterodimers are found on helper and cytotoxic T-cells and are specific for antigenic peptides presented by MHC gene products. T-cells expressing gamma/delta heterodimers directly recognize proteins and non-proteinacious phospho-ligands. T-cell receptors are non-covalently associated with CD3, forming the TCR-CD3 complex. TCRs activate MAPKs and JNK1 through the CD3 antigens, the adaptor protein LAT, and tyrosine kinases LCK and ZAP70. (from OMIM and NCI)