HELSINGIN YLIOPISTO - HELSINGFORS UNIVERSITET

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Työn nimi - Arbetets titel		
The genes for CD37, CD53, and R2, all members of a novel gene family, are located on different chromosomes		
Oppiaine - Läroemne		
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CD37, CD53, and R2 leukocyte surface antigens are members of the tetra spans protein family. The fourteen members of this novel family of structurally related proteins share several characteristics. A feature of these antigens is their orientation on the membrane. They all have four transmembrane-spanning domains with a single major extracellular loop, which is often N-glycosylated. The N- and C-termini of these polypeptides appear to be on the cytoplasmic side of the cell membrane. The three members, CD37, CD53, and R2, share a notable amount of amino acids(34%). This suggests the existence of a subfamily.

The members of this family are expressed on various cell types. The CD37 antigen is strongly expressed on the surface of B-cells and only weakly on a subpopulation of T-cells. The CD53 glycoprotein is a pan-leukocyte marker that is widely expressed on haemopoietic cells. The R2 antigen is expressed on many cell types. It is known to function as a signaling molecule on the cell membrane.

Most of the genes which code for the tetra spans molecules have been cloned and sequenced. Several of these genes have been assigned to different human chromosomes. The *CD9* and *CD63*, which both code for tumor-associated antigens, have been localized to 12p13 and to 12q12-q14, respectively. The gene for *TAPA-1*, which is expressed in B-cell lymphomas, has been mapped to region 11p-p15.5.

The human/rodent somatic cell hybrids and human specific cDNA probes were used to assign the CD37, CD53, and R2 genes to human chromosomes 19, 1, and 11, respectively. For the regional assignment, various deletion hybrids were used to map *CD37* to 19q13-q13.4, *CD53* to 1p12-p31, and R2 to 11p12.

Avainsanat - Nyckelord

Tetra spans family, CD37, CD53, R2, genetic mapping, somatic cell hybrids

Säilytyspaikka - Förvaringställe

Genetics library

Muita tietoja - Övriga uppgifter