

Genes-4U

IL4-Receptor alpha Q576R

In vitro, this frequent mutation (about 30 % heterozygotes) is associated with increased signalling induced by interleukin - 4. In vivo, association of the interleukin-4 receptor alpha variant Q576R has been observed with connective tissue disease, in particular with **progressive systemic sclerosis, systemic lupus erythematosus and primary Sjogren syndrome**, with relative risks of 3.3, 3.2 and 2.6. In patients with systemic lupus erythematosus the Th1/Th2 balance was strongly influenced by the Q576R genotype, being less than half in presence of the R allele (1). Furthermore, the IL-4 receptor alpha-chain variant Q576R has been found to be strongly associated with decreased **kidney allograft survival**, possibly also because of a shift in the Th1 / Th2 balance. Association with IgE and asthma / atopy appears dependent on ethnic background (3). However, in **mastocytosis**, the relative overactivity of the Q576R mutant appears associated with milder disease and lower levels of circulating mast cell markers such as tryptase and sCD117 (4).

References

1. Association of the interleukin-4 receptor alpha variant Q576R with Th1/Th2 imbalance in connective tissue disease. Youn J et al. Immunogenetics 2000 Jul;51(8-9):743-6 (PMID: 10941846)
2. The IL-4 receptor alpha-chain variant Q576R is strongly associated with decreased kidney allograft survival. Hackstein H et al. Tissue Antigens 1999 Nov;54(5):471-7
3. Interleukin-4 receptor variant Q576R: ethnic differences and association with atopy. Interleukin-4 receptor variant Q576R: ethnic differences and association with atopy. Tan EC et al. Clin Genet 1999 Oct;56(4):333-4
4. Association of the Q576R polymorphism in the interleukin-4 receptor alpha chain with indolent mastocytosis limited to the skin. Daley T et al. Blood 2001; 98(3):880-2 (PMID: 11468192)