HLA-DR4 Associations

HLA-DR4 is a variant of human MHC class 2 molecules found in certain individuals. Its presence is associated with the development of certain autoimmune diseases, including rheumatoid arthritis, type 1 diabetes mellitus, pemphigus vulgaris, and Addison's disease.

PLAY PICMONIC

Characteristics

MHC II

MHC complex with (2) Tutu

MHCs, or major histocompatibility complexes, are molecules present on the surface of immune cells. HLA-DR is a type of MHC molecule. HLA-DR is a highly heterogeneous molecule in humans, and has many numerical variants, one of which is HLA-DR4.

Autoimmune Diseases

Auto-in-moon

The presence of HLA-DR4 in patients is associated with the development of many autoimmune diseases. The exact mechanism underlying this association is unknown, but the link between certain HLA molecules and autoimmune disease development is strong.

Associations

Rheumatoid Arthritis

Roman King-Arthur

Rheumatoid Arthritis is associated with HLA-DR4 and HLA-DR1. This autoimmune disease causes symmetrical arthritis and joint swelling. To learn more about RA, visit our corresponding Picmonic.

Type 1 Diabetes

Dyed-beads-pancreas (1) wand

The HLA-DR4 gene is associated with the development of type 1 diabetes, which is an autoimmune disease that attacks insulin-producing cells in the pancreas. For more information, visit the type 1 diabetes mellitus pathway.

Pemphigus Vulgaris

Pegasus Vulgar with Blisters

Pemphigus Vulgaris is a type II hypersensitivity reaction directed against desmoglein 3 and 1 in desmosomes. This results in the loss of cell-to-cell adhesion in the epithelium. Symptoms include early pruritis followed by the development of widespread, flaccid bullae on the skin and oral mucosa.

Addison's Disease (Primary Adrenal Insufficiency)

Add-sun

Addison's Disease, or primary adrenal insufficiency, is characterized by the loss of adrenal function. This is most often due to autoimmune destruction of the glands. Patients will have symptoms related to deficiencies of hormones normally produced by the adrenal gland, including aldosterone, cortisol, and androgens. Additionally, increased levels of CRH will lead to hyperpigmentation.