

HLA-DR3 Associations

Human leukocyte antigen, or HLA, encode for several major histocompatibility complex proteins. HLA-DR, -DQ, -DP are involved in MHC class II. Genetic alterations in HLA-DR3 can increase the risk of developing several autoimmune diseases. These include type 1 diabetes mellitus, lupus, Hashimoto thyroiditis, Graves disease, and Addison disease.



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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-DR3.

Autoimmune Diseases

[Auto-in-moon](#)

Presence of HLA-DR3 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

Type 1 Diabetes

[\(1\) Wand and Dyed-bead-pancreas](#)

The HLA-DR3 gene is associated with type 1 diabetes, which is an autoimmune disease which attacks insulin producing cells in the pancreas. Patients with HLA-DR3 have about a six-fold increase in the risk of the development of type 1 diabetes.

Systemic Lupus Erythematosus (SLE)

[Loopy-butterfly](#)

Systemic Lupus Erythematosus (SLE) is associated with HLA-DR3. This disease has an association with not only HLA-DR3, but HLA-DR2 as well. SLE is a complex, multisystem disease that typically involves arthralgias, photo-sensitivity, and low blood counts.

Hashimoto's Thyroiditis

[Hashtag-Moto Thigh-droid-on-fire](#)

Hashimoto's thyroiditis is linked to HLA-DR3 as well as DR5. This disease is the result of self-active T-cells that target and destroy thyroid peroxidase. This disease presents as hypothyroidism.

Graves Disease

Broken Grave

The presence of HLA-DR3 increases the likelihood for the development of Graves' disease. As with other autoimmune diseases and disorders associated with HLA-DR3, the exact mechanism underlying the association is unknown. This disease presents as hyperthyroidism.

Addison's Disease (Primary Adrenal Insufficiency)

Add-sun

Addison's Disease, or Primary Adrenal Insufficiency, is associated with the presence of HLA-DR3. This disease is the result of an autoimmune attack on the cells of the adrenal cortex. Patients present with fatigue, orthostatic hypotension, and/or electrolyte abnormalities.