

GENETICS

Genetic variants suggest shared pathways to autoimmune disease

Increasing evidence indicates that some genetic variants confer a predisposition to multiple autoimmune diseases, such as rheumatoid arthritis (RA), type 1 diabetes and celiac disease. A report by Eyre *et al.* adds fresh support to this link. “We wanted to explore which genetic variants were unique to a particular disease and which predisposed to more than one autoimmune disease,” explains Steve Eyre, corresponding author of the study.

The investigators selected eight single nucleotide polymorphisms (SNPs) previously associated with celiac disease and six SNPs with a known link to type 1 diabetes for study in patients with RA ($n = 3,962$) and healthy controls ($n = 3,531$). A variant in the *TAGAP* gene, previously linked with both celiac disease and type 1 diabetes, was also significantly associated with RA. Interestingly, the *TAGAP* minor allele seemed to confer protection against both RA and type 1

diabetes, but had the opposite effect in celiac disease, where it correlates with susceptibility. Thus far, RA susceptibility loci seem to overlap to a greater extent with those for type 1 diabetes than with those for celiac disease.

“To fully understand the similarities and differences in the genetic loci that increase risk of autoimmune diseases, it will be necessary to fine map these regions to find all possible associated variants in a range of autoimmune diseases,” comments Eyre. “This work is already underway and is known as the Immunochip project and will lead to a much better understanding of the genetics of autoimmunity,” he concludes.

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Original article Eyre, S. *et al.* Overlapping genetic susceptibility variants between three autoimmune disorders: rheumatoid arthritis, type 1 diabetes and coeliac disease. *Arthritis Res. Ther.* **12**, R175 (2010)