Type 1 diabetes and multiple sclerosis links: Early findings released

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Preliminary research released today revealed findings on common genetic and environmental risk factors between two autoimmune diseases, type 1 diabetes (T1D) and multiple sclerosis (MS).

Even though MS and T1D have very few clinical similarities, they co-occur more often than one would expect by chance. This suggests that they share risk factors. Known common environmental risk factors currently include low sun exposure and low vitamin D levels.

Grant Parnell, of The Westmead Institute for Medical Research, attended the 2016 International Congress of Immunology (ICI) in Melbourne to present the preliminary findings of his research team in a poster session.

The objectives of Parnell and team's research are to better define the shared risk genes, and to search for rare genetic variants that may be contributing to risk of developing both T1D and MS.

To date, the team has sequenced the whole genomes of five individuals with both MS and T1D and has found several rare genetic variants in each person. These variants are predicted to have consequences in the structure of the protein encoded by the genetic sequence, several of which are in genes which are involved in determining an individual's susceptibility to T1D or MS.

Parnell has also begun investigating the expression in different types of immune cells of the risk genes that are found in both diseases. He has discovered that the shared genetic risk across MS and T1D likely involves multiple arms of the immune system.

Further study into the risk genes common to these two diseases may provide additional insight into the autoimmune process and reveal common pathways that identify opportunities for the development of new therapies.

Parnell and team will conduct further analyses of the identified rare genetic variants to determine why these individuals have developed these two autoimmune diseases.