Genetic clues for type 2 diabetes

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The two studies identified 53 loci (regions on the chromosome where genes are located) that are linked to glycemic traits and type 2 diabetes. The research could help scientists develop a tool to detect the risk of developing type 2 diabetes. Image: fpm/iStockphoto

Busselton residents and researchers from The University of Western Australia have contributed to a worldwide scientific collaboration that has identified new genetic links in the quest to map the biological pathways that cause diabetes.

In two papers published online today in Nature Genetics, the researchers have identified a substantial number of new loci (the specific place on a chromosome where a gene is located) linked with glycemic traits and type 2 diabetes (T2D) that have not been described in previous research.

Diabetes is a condition where there is too much glucose, a type of sugar, in the blood. Type 2 diabetes is the most common form of diabetes affecting some 90 per cent of all people with diabetes. It is sometimes described as a 'lifestyle disease' strongly associated with high blood pressure, high cholesterol and obesity.

In the study 'Large-scale association analysis provides insights into the genetic architecture and pathophysiology of type 2 diabetes' researchers extended the discovery and characterisation of variants influencing susceptibility to T2D.

The study expanded T2D association analysis to almost 150,000 individuals and in so doing added another 10 loci to the list of confirmed variant signals. It also concluded that genetic profiling had the potential to provide a useful risk assessment for developing T2D.

The second paper titled "Large-scale association analyses identify new loci influencing glycemic traits and provide insight into the underlying biological pathways" discovered another 38 new loci with glycemic traits not described in previous research, taking the total number of signals influencing glycemic traits to 53.

"This research will provide a better understanding of the genes associated with glycemic control that may interact with environmental factors and trigger diabetes," co-author Dr Jennie Hui from the UWA Schools of Pathology and Laboratory Medicine and Population Health said.

Provided by University of Western Australia