

Why do some people develop type 1 diabetes rapidly while others at risk do not?

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Monitoring for diabetes through a blood test.

(Medical Xpress)—The autoimmune process leading to type 1 diabetes can develop quickly in some children and young people but very slowly in others despite the presence of proteins in their blood indicating an ongoing autoimmune process in the pancreas. Thanks to combined funding of over \$1 million a new study hopes to understand why some people develop type 1 diabetes very early while others who are known to be at risk are protected for decades.

Researchers from the University of Bristol's Diabetes and Metabolism Research Group in the School of Clinical Sciences have identified a unique group of first degree relatives of individuals with type 1 diabetes who are a high risk of diabetes because they have had at least two islet autoantibodies in their blood for more than ten years but have not developed the disease.

The Bristol team, following a grant of \$650,000 from the Juvenile Diabetes Research Foundation (JDRF), now wish to expand this group by identifying slow progressors in existing longitudinal studies in the USA, Germany and Australia as well as participants in TrialNet, an international network of sites which is dedicated to the study, prevention, and early treatment of type 1 diabetes. The researchers will carry out a series of tests to help understand why this group are relatively protected from the clinical signs of diabetes.

Dr Kathleen Gillespie, Senior Lecturer in the Diabetes and Metabolism research group who is leading the study, said: "It is well established that the presence of two or more islet autoantibodies in the blood is a very accurate marker for future type 1 diabetes. Yet some "at risk" individuals remain diabetes-free for decades.

"The aim of our study is to identify how the onset of diabetes is delayed for many years in some individuals. We believe that understanding the nature of this protection will ultimately help protect others."

The researchers believe the study will show that a group of T cells, called regulatory T cells, function more effectively in slow-progressors compared with people who develop [type 1 diabetes](#).

Specialist assays are required to measure T cell function in this way and Dr Anna Long, who recently completed her PhD with the Bristol group, has been awarded a joint travel fellowship by the Fulbright Commission and Diabetes UK of \$358,000 to enable her to train in these techniques at the Benaroya Research Institute in Seattle.

In 2015, Anna will return to Bristol to establish these assays and use them to measure [immune cell function](#) in the individuals described in the JDRF study who appear to be relatively protected from developing type 1 [diabetes](#).

Provided by University of Bristol

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