

# Blood signature for $\beta$ -cell autoimmunity – potential tool for disease prevention

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Using cutting-edge genomics methods a gene signature predicting type 1 diabetes was discovered. This signature is detectable already before the appearance of type 1 diabetes associated autoantibodies. The finding

could help in identifying early on the children who are likely to develop the disease later.

The incidence of type 1 [diabetes](#) is record high in Finland, but the reason for this is unknown. However, the appearance of autoantibodies associated with type 1 diabetes indicates a likelihood to develop the disease.

An [international study](#) led by scientists from the Turku Bioscience Centre at the University of Turku, Finland, identified an early [gene signature](#) in children who will later develop type 1 diabetes—even before the appearance of the associated blood autoantibodies.

"Our results provide a starting point for identifying those children who are likely to develop the disease later. Next, we will validate and expand the study in a larger cohort and analyse the role of the signature molecules in the pathogenesis of type 1 diabetes. Our goal is to develop tools and means that would enable the prevention of type 1 diabetes," says Academy Professor Riitta Lahesmaa from the University of Turku.

The study involved a long-term international cross-disciplinary collaboration between clinicians, experts in [molecular medicine](#) and immunology, and computational scientists.

"We have been fortunate to collaborate with Professor Mikael Knip from the University of Helsinki, who has been responsible for coordinating this exceptional EU-funded programme and the collection of unique follow-up samples and [clinical data](#) from children," says Professor Lahesmaa.

Professor Lahesmaa's research group works in the Turku Bioscience Centre of the University of Turku and Åbo Akademi University. The study was funded by the Academy of Finland, Juvenile Diabetes

Research Foundation (U.S.), and the European Union. The study was published in *Diabetes* and it was presented as a Research Highlight in *Nature Reviews of Endocrinology*.

**More information:** Henna Kallionpää et al. Early Detection of Peripheral Blood Cell Signature in Children Developing Beta-Cell Autoimmunity at a Young Age, *Diabetes* (2019). [DOI: 10.2337/db19-0287](https://doi.org/10.2337/db19-0287)

Provided by University of Turku

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