Diagnosis
In the lab, it is possible to detect those autoantibodies, against Langherhans islets cells using IFA on primate pancreas sections and using ELISA for GAD65, IA2 and ZnT8 autoantibodies.

Pathology
Characterised by chronic hyperglycemia, type 1 diabetes needs the patients to have an exogeneous source of insulin to stabilise their glycemia and avoid diabetic acidoketosis. The insulin producing β cells of the pancreas are destroyed by autoreactive T-cells. This process is followed by a secondary response with production of autoantibodies directed against Langherhans islets cells, GAD, IA2 and ZnT8.
**Anti-GAD65 and Anti-IA2 ELISA**

Autoantibodies anti-GAD (Glutamate Acid Decarboxylase 65kDa) and anti-IA2 (Tyrosine Phosphatase or Insulinoma Antigen 2) are well-known routine markers in autoimmune diabetes [1,2]. These tests, historically carried out in RIA labs are available in ELISA with comparable performances for a lower cost and a better practicability [3,4].


**Anti-ZnT8 ELISA**

ZnT8 (Zinc Transporter 8) proteins are also targets of autoantibodies that will lower the capabilities of the β cells of Langherhans islets to internalize zinc that normally assures stability of the insulin molecule in an hexameric form [1,2].

Different studies conclude that the ZnT8 autoantibodies testing should be included as an additional marker in the type 1A diabetes panel of autoantibodies [3,4] as for the latent autoimmune diabetes of adult [5,6].


**Anti-Islet cells IFA**

Certain patients, suffering from autoimmune diabetes, only have autoantibodies against Langherhans islets cells (Islet Cells Autoantibodies or ICA) [1] and do not show any positivity for GAD65, IA2 or ZnT8. Therefore immunofluorescent assay is still a test of interest for the exploration of this pathology, mainly for children and adolescents. [1]