DIABET1: Biomarkers for early diagnosis of diabetes type 1.

By measuring the expression of two mRNAs in blood, DT1 can be diagnosed prior to debut.

Medical need

Diabetes mellitus type 1 (DM1) is an autoimmune disease with no cure that leads to a progressive destruction of insulin-producing beta cells.
The evolution is progressive and goes through three stages:

- Appearance of antibodies, without insulinitis or disease.
- Onset of insulinitis, without hyper- or hypoglycemia.
- Debut of the disease, at this point the rate of beta cells is very low.

Technology

Method for early diagnosis (prior to disease debut) of DT1, based on the mRNA expression level of two new markers.
The analysis is performed on a blood sample in which circulating lymphocytes are isolated. The method allows the results to be obtained quickly and affordably by quantitative PCR, a technique widely used in the health sector.

Oportunity

Prevalence

Worldwide: 8,4M people.
Europe: 1M people.
Spain: 150K people.
An increase is expected in the coming years.

Market

The DT1 market size is estimated at $15.95 billion in 2024, and is expected to reach $24.36 billion in 2031, with a CARG of 6.2%

Other solutions

Currently, stage 1 detection is performed by blood antibody testing. These antibodies are detectable in only 70% of cases.

Results

A study was performed in 10 healthy patients and 18 patients with debuting DT1.
CD4+ T lymphocytes were isolated from peripheral blood and the expression of three cannabinoid receptors was analyzed by PCR.
Two of the receptors showed significant differences in their expression in patients with recent debut with respect to controls.

Roadmap

IBIMA plataforma BIONAND is looking for a partner to further develop the technology through a co-development or licensing agreement.

Patent:
National and PCT patent applications
Priority: 16/05/2023

Team:
IBIMA Plataforma BIONAND research group of Endocrinology and Nutrition, Diabetes and Obesity

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