Valpha24JalphaQ receptor as a lead diagnostic and therapeutic for type I diabetes

Published date: Feb. 1, 2012

Technology description

Summary

A Diagnostic Method for Autoimmune Disease: The Number of V?24J?Q Positive T Cells:
The diagnostic method involves determining the percentage of total T-cells that are CD4-CD8-V?24J?Q+ and comparing these to the percentage of such cells in a control group of disease-free individuals. The likelihood of the tested individual having or developing an autoimmune disease increases as the percentage of CD4- CD8- V?24J?Q positive cells in this individual decreases relative to the percentage of these cells in the control group. One way that percentages may be determined is by sorting all CD4-CD8-?? TCR+ T-cells using flow cytometry and amplifying V?24J?Q transcripts and sequencing the TCR CDR3 region of the amplified product in order to determine frequency of V?24J?Q. The frequency of V?24J?Q is multiplied by the percentage of total T-cells that are CD4-CD8- V.alpha.24+. The method is compatible with other procedures as well. For example, antibodies specifically directed to a cell surface antigen exclusively present on V?24J?Q T-cells may be used in standard immunoassays (radioimmunoassay or immunometric assays) for quantitation of cell number. This procedure may be applied to all autoimmune diseases, such as type 1 diabetes, multiple sclerosis, systemic lupus erythematosus, rheumatoid arthritis, type 1 diabetes, myasthenia gravis, psoriasis, scleroderma, Sjogen's disease, and idiopathic thrombocytopenia purpura.
Autoimmune diseases are the result of a patient's immune system attacking their own cells and tissues. This can result in a wide variety of diseases, including multiple sclerosis, myasthenia gravis, and type 1 diabetes. Researchers at Harvard University have discovered a novel method of diagnosing type 1 diabetes.

Advantages

Type 1 diabetics lack the V?24J?Q receptor and express high amounts of the Th1 cytokine IFN-?. This discovery has important implications for early stage diagnosis and treatment of diseased individuals. For example, the number of V?24J?Q positive T-cells as well their cytokine profile can be quantified to accurately reflect the stage of the disease. Additionally, the invention encompasses a novel method of treating type I diabetics by increasing the number of V?24J?Q positive T-cells.

Institution

Harvard University

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com