B-Regulatory Cells for Autoimmune Diseases

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Technology description

Summary

Investigators at the University of Pittsburgh have developed a novel method for the identification, selection and expansion of regulatory B cells which would be useful in the treatement of certain autoimmune diseases.

Description

Investigators have identified a novel biomarker on Breg cells that can be used to isolate IL10 expressing Bregs. Once isolated, these cells can then be expanded in vivo. Moreover, investigators have developed an antibody to the biomarker that can selectively activate this B-cell subpopulation to induce immune tolerance in animal models of multiple sclerosis and inflammatory bowel disease (IBD.
Background
The importance of B cells to cellular immunity is underscored by studies in both humans and mice showing that B cell deficiency or depletion can actually improve autoimmune diseases primarily mediated by T cells, including type I diabetes, and rheumatoid and collagen induced arthritis. However, in a variety of other murine models, including EAE (a model for multiple sclerosis), inflammatory bowel disease (IBD), and allergic skin reactions (contact hypersensitivity B cell deficiency or depletion, worsens disease. Therefore, definitive identification of regulatory B cells (Breg) is crucial in the therapeutic setting and has been extremely challenging because Bregs lack a specific marker and interleukin (IL)- 10 expression has only been detected ex vivo.

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