Identification of Novel Regulatory CD8 T Cells in Control of Inflammation in the Gut

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BACKGROUND

A dynamic set of complex interactions between intestinal microbes, intestinal epithelial cells and intestinal immune cells are key in maintaining normal intestinal homeostasis as well as in the etiology of Inflammatory Bowel Disease (IBD). It is becoming clear that regulatory T cell-mediated control of inflammation is critical for the maintenance of immune tolerance in gut. Since 1970s, it has been suggested that CD8+ regulatory T cells play an important role in immune regulation of autoimmune diseases, transplant tolerance, and homeostasis of cellular and humoral immune responses. Among Treg subpopulations, an important role for Foxp3+CD4+ Treg and Foxp3- IL-10-secreting CD4+ T cells has been elucidated, while the function of CD8+ regulatory T cells in the gut has been hampered by an inability to distinguish them from conventional CD8+ T cells. Normally specific cytokines and transcription factors are the driving factors for maintaining the expression of a particular T cell phenotype.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have developed methods to identify and phenotype a subtype of a CD8+ T regulatory cell, which is more prevalent in the gut and in the liver. Adoptive transfer of these CD8+ T regulatory cells protect mice from developing antigen-induced EAE (model for multiple sclerosis) and also protected mice from developing colitis (two different models for IBD). Additional studies suggest that monoclonal antibodies that bind to this CD8+ T regulatory cell could potentially be used to treat patients with various autoimmune diseases, including IBD, MS and lupus.

APPLICATIONS

Monoclonal antibodies that bind to this CD8+ T regulatory cell could potentially be used to treat patients with various autoimmune diseases, including IBD, MS and lupus.

STATE OF DEVELOPMENT

A research model

INTELLECTUAL PROPERTY INFO

This technology is patent pending and available for licensing and/or research sponsorship.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	2019084008	05/02/2019	2018-081

Additional Patents Pending

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OTHER INFORMATION

KEYWORDS

Treg, inflammation, CD8 T cells, T cell phenotype, regulatory T cells, IBD, EAE, Lupus

CATEGORIZED AS

- **Medical**
  - Disease: Autoimmune and Inflammation

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