New Non-Invasive Markers To Assess Efficacy Of Anti-Integrin Therapies

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BACKGROUND

Inflammatory bowel disease is a chronic disease, which affects the lower bowel parts or the entire GI tract, causing symptoms like abdominal pain, diarrhea, fever and weight loss. An estimated two million people in North America suffer from IBD seemingly caused by an overactive mucosal immune system. Crohn's Disease and ulcerative colitis (UC) are the major groups of inflammatory conditions that make up IBD and are incurable, serious and chronic organic diseases of the intestinal tract.

Recently, anti-integrin monoclonal antibodies have been approved by the FDA as therapeutic agents for treatment of IBD and there are a number of phase three clinical trials ongoing using monoclonal antibody therapy. The immune system responds to the inflammation that is part of the immunopathology of IBD and acts by recruiting inflammatory cells to the intestinal lesions.
Intergrins, specifically alpha 4-β7, plays a key role in mediating leukocyte trafficking from the circulation to the vascular endothelial barrier in gut-associate lymphoid tissue with the ligand MAdCAM-1. The use of anti-integrin therapy targeting alpha 4-β7 reduces the number of immune cells to the gut endothelium. However, the precise identity of the cell subsets depleted from the intestinal lamina by these anti-integrin drugs have not been identified. Thus, there is an unmet need to further develop tools that allow for the identification of the critical effector cell subsets targeted by these drugs in the intestine.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have analyzed peripheral blood cells following successful blockade of the alpha4 beta 7 integrin using FDA approved anti-integrin drugs or by two phase three clinical trial drugs currently in use. The inventors discovered an increase in some biological molecules, which could serve as a surrogate marker of the drug's therapeutic effects obviating the need of invasive tests such as colonoscopies/biopsies.

APPLICATIONS

These tests may serve as surrogate non-invasive biomarkers for analysis of the therapeutic response(s) of anti-integrin therapies.

ADVANTAGES

Unlike other methodologies, our analysis of biomarkers for the therapeutic effects of anti-integrin drugs does not rely on colonoscopy or biopsies.

STATE OF DEVELOPMENT

Currently at the experimental stage.

INTELLECTUAL PROPERTY INFO

The invention is patent-pending and is available for licensing and collaborations.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

IBD, leukocyte migration, anti-integrin therapy, biomarkers, Crohn's Disease, ulcerative colitis, alpha 4-ß7

CATEGORIZED AS

- Medical
  - Diagnostics
  - Disease: Digestive System
  - Screening

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