

Das-1 Monoclonal Antibody for Diagnosis of Ulcerative Colitis

Background

Ulcerative colitis is an inflammatory bowel disease caused by the inflammation and sores in the lining of large intestine. It is estimated that about 5% of patients suffering from ulcerative colitis are at risk of developing colon cancer. Annually, about 2 million Americans are afflicted with either ulcerative colitis or Crohn's disease, with roughly 1 million patients suffering from each disease. Sera of patients with ulcerative colitis reveal autoantibodies to colonic autoantigens. This disease is hard to diagnose because of similarity in the symptoms with another inflammatory bowel disease called Crohn's disease. Currently, there is no cure or effective treatment for ulcerative colitis.

Current diagnostic methods involve endoscopic examination, barium test, blood test and stool test. These diagnostic methods are costly, ineffective, intrusive and painful. **Thus, alternative diagnostic modalities that overcome these limitations would be economically beneficial.**

Description of the Technology

A monoclonal antibody, named Das-1, that reacts specifically to a colonic epithelium protein called the colon epithelial specific protein (CEP) was developed using colonic extracts enriched for CEP. Interestingly, CEP has significant homology to tropomyosin isoform 5, the predominant autoantigen believed to be involved in the pathogenesis of ulcerative colitis. Das-1 antibody reacts with colonic epithelium but not with epithelium of small intestine, gastric, esophageal and gastric-esophageal junctional epithelium indicating organ specificity of Das-1. Also, Das-1 monoclonal antibody reacts with colon cancer cells but not with pancreatic cancer cells.

Interestingly, immunofluorescence assay with patients' sera and competitive inhibition studies revealed autoantibodies against CEP in ulcerative colitis patients. IgG1, CEP, C3b and complement complex were localized to the colonic epithelium in ulcerative colitis but not in Crohn's disease, suggesting that CEP may be a target for an IgG1 response in ulcerative colitis. These studies and other previous studies reveal an autoimmune response to CEP as the predominant etiology of ulcerative colitis. These studies open the possibility of using Das-1 monoclonal antibody for the diagnosis of ulcerative colitis.

Advantages

- Non-invasive in vitro and in vivo diagnostic assays can be designed
- Commonly used diagnostic methods such as endoscopy, X-rays of upper gastrointestinal tract and fecal occult blood test have limitations and are very expensive to perform.

Applications

- For in vitro diagnostic assay
- For in vivo diagnostic assay
- For research use

Patent Status

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- United States patent issued on Feb 9, 1999 (Patent Number: 5,869, 048).

Licensing Opportunity

- This technology is available for licensing non-exclusively for research use or exclusively for diagnostic uses.

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