

## **Therapeutic and Diagnostic Methods for Ulcerative Colitis and Associated Disorders**

### **Background**

Tropomyosins are microfilament-associated proteins found in all eukaryotes and have been implicated in autoimmune diseases such as ulcerative colitis. To date, eight different isoforms (hTM1, hTM2, hTM3, hTMsm $\alpha$ , hTM5a, hTM5b, hTM4, and hTM5) have been identified. Although anti-tropomyosin autoantibodies have been detected in the sera of patients with ulcerative colitis, the autoantigen triggering the autoantibody response has not been definitively identified. Studies at UMDNJ have identified hTM5 as the predominant tropomyosin expressed in colon epithelium. However, it is unknown whether this isoform is accessible to anti-TM autoantibodies. **The present invention identifies hTM5 as the predominant immunogen in ulcerative colitis patients.**

### **Description of the Technology**

Studies at UMDNJ have revealed that hTM5 is externalized in the colon epithelium but not in the small intestinal epithelium. hTM5 has been found to be associated with a colonic epithelium protein called the colon epithelial specific protein (CEP) and both are found to be secreted by colon cancer cells. Thus, this externalization of hTM in colon epithelium can confer an antigenic role to the protein and lead to the stimulation of the immune system. Furthermore, hTM and CEP can interact leading to the release of hTM outside the cell and thereby stimulate an autoantibody response to hTM. Studies by other scientists have shown that an autoantibody response to hTM is associated with ulcerative colitis. Taken together, these data indicate that inhibition of the externalization of hTM in the colon can be used as a strategy in the prevention and therapy of ulcerative colitis and other diseases associated with autoantigen response to hTM.

### **Applications**

- . • Therapy of ulcerative colitis by administering a compound that inhibits the externalization of hTM
- . • Therapy of ulcerative colitis by administering a compound that inhibits the interaction of hTM with CEP
- . • Diagnosis of ulcerative colitis and other diseases associated with autoantigen response to hTM by detecting CEP-hTM complexes

### **Patent Status**

- . • United States Patents granted on October 5, 2004
- . • Patent No.: 6,800,446

### **Licensing Opportunity**

This technology is available for licensing exclusively.

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