



## TROPOMYOSIN

### FUNCTION:

Tropomyosin is a cytoskeletal microfilamental protein that regulates actin mechanics. Tropomyosin plays an important role in muscle contraction. Tropomyosin, along with the troponin complex, works with actin in muscle fibers and manages muscle contraction by regulating the binding of myosin. Tropomyosin isoforms are involved in the stabilization of actin filaments, intracellular organelle movement, cell-shape maintenance and cytokinesis.

### ANTIBODIES APPEAR:

Autoimmune Cardiovascular Diseases<sup>4</sup>  
 Colon Autoimmunity<sup>1 2 5</sup>  
 Ulcerative Colitis<sup>1 2 5</sup>

### KNOWN CROSS-REACTIONS:

Group A Streptococcal M Proteins<sup>3</sup>, Myosin<sup>4</sup>

### CLINICAL SIGNIFICANCE:

The autoantibodies of Tropomyosin present in the sera of patients with Ulcerative Colitis have been shown to destroy Cr-labeled colonic adenocarcinoma cells (LS180) by antibody and complement mediated lysis.<sup>2</sup> Due to the high familial incidence of Ulcerative Colitis,<sup>1</sup> first degree relatives of patients diagnosed with Ulcerative Colitis, should be assessed for Tropomyosin antibodies.

### References:

1. Das KM, Dasgupta A, Mandal A, et al. Autoimmunity to cytoskeletal protein tropomyosin. A clue to the pathogenetic mechanism for ulcerative colitis. *J Immunol*, 1993; 150:2487-2493.
2. Ebert EC, et al. Autoantibodies against human tropomyosin isoform 5 in ulcerative colitis destroys colonic epithelial cells through antibody and complement-mediated lysis. *Cellular Immunol*, 2006; 244:43-49.
3. Fenderson PG, et al. Tropomyosin shares immunologic epitopes with group A streptococcal M proteins. *J Immunol*, 1989; 142(7):2475-2481.
4. Fujita A, et al. Enzyme-linked immunosorbent assay for anti-tropomyosin antibodies and its clinical application to various heart diseases. *Clinica Chimica Acta*, 2000; 299(1-2):179-192.
5. Mirza ZK, Sastri B, Lin JJ-C, et al. Autoimmunity against human tropomyosin isoforms in ulcerative colitis. *Inflamm Bowel Dis*, 2006; 12(11):1036-1043.