CLINICAL SPECIFICATIONS

ACTOMYOSIN NETWORK (saliva)

Function:

Gastrointestinal microfilaments of the Actomyosin Network are critical for apical junctional complex biogenesis and function.[1] The apical junctional complex, made up in part by tight junction proteins zonulin and occludin, is responsible for preventing antigen invasion and preservation of the biochemical homeostasis within the gastrointestinal tract.[3] The Actomyosin Network can signal tight junction contractions and give structure to their assembly.

Serum Antibodies Appear:

Autoimmune liver disorders[2]
Celiac disease[1, 4]
Chronic hepatitis[2]
Crohn's disease[4]
Myasthenia Gravis[5]

Known Cross-Reactions:

Clinical Significance:

The detection of salivary antibodies against Actomysin indicates the beginning stage of autoimmune reactivity to intestinal barrier smooth muscle due to a biomechanism initiated by environmental triggers such as infections, toxic chemicals and some dietary proteins and peptides. Many environmental factors such as bacterial toxins can affect the stability of the actomyosin network and occludin/zonulin. Serum antibodies to the actomyosin network are therefore biomarkers of breakdown in barrier structure and intestinal barrier dysfunction, either via bacterial infiltration or by an autoimmune mechanism aimed at the gastrointestinal tract. For the best clinical value, antibodies against the actomyosin network should be measured in conjunction with lipopolysaccharide (LPS) and occludin/zonulin proteins. When serum antibodies are detected against actomyosin alone, it is an indication of autoimmunity against the mucosal epithelium and other tissue cell cytoskeleton of the intestinal barrier. When antibodies are detected against actomyosin network and LPS, but none are detected for occludin/zonulin, this indicates a breakdown in intestinal barrier integrity by bacterial antigens through the transcellular pathway. The detection of salivary antibodies against actomyosin, LPS and occludin/zonulin indicates the health of the intestinal barrier is at risk.

Suggested Reading:

1. Clemente, et al. Enterocyte actin autoantibody detection: a new diagnostic tool in celiac disease, resulst of a multi-center study. Gastroenterol, 2004; 99:1551-1556.
2. Gröschel-Stewart and Doniach. Immunological evidence for human myosin isoenzymes. Immunology, 1969; 17:991-994.
3. Ivanov, et al. Differential roles for actin polymerization and a myosin II motor in assembly of the epithelial apical junctional complex. Mol Biol Cell, 2005; 16:2636-2650.
4. Magalhaes, et al. Studies on the nature and significance of connective tissue antibodies in adult coeliac disease and Crohn's disease. Gut, 1974; 15:284-288.
5. Romi, et al. Striational antibodies in Myasthenia Gravis: reactivity and possible clinical significance. Arch Neurol, 2005; 62:442-446.