CYREX® Laboratories

CLINICAL SPECIFICATIONS

OCCLUDIN / ZONULIN (saliva)

Function:

The gastrointestinal tract is lined by a protective epithelium. The tightness and stability of this barrier is regulated by a series of intercellular junctions, collectively called tight junctions.[2, 4] These junctions allow the entry of very small molecules, such as nutrients. The integrity of the intestinal barrier is vital for the protection of the body against antigen invasion and for the preservation of gut microchemical homeostasis.[4] Zonulin and occludin proteins constitute the majority of the building blocks of the tight junctions.[3, 6]

Associated With:

Loss of oral tolerance

Known Cross-Reactions:

Clinical Significance:

The detection of salivary antibodies against occludin/zonulin indicates the beginning stage of autoimmune reactivity to intestinal barrier tight junctions due to a biomechanism initiated by environmental triggers such as infections, toxic chemicals and some dietary proteins and peptides. The presence of salivary antibodies against both occludin/zonulin and LPS indicates that the integrity of the intestinal barrier could be breached by bacterial antigens through the paracellular pathway. In many autoimmune diseases, including Celiac disease, Type 1 Diabetes,[5] and other autoimmune disorders,[1] the onset of the disease is usually preceded by occludin/zonulin upregulation. Genetically susceptible patients who test positive for occludin/zonulin should be further assessed, monitored and set on a preventive program for Type 1 Diabetes and other autoimmune disorders.

Suggested Reading:

1. Assimakopoulos, et al. Enterocytes' tight junctions: From molecules to diseases. World J Gastrointest Pathophysiol, 2011; 2(6):23-137.
2. Chen, et al. COOH terminus of occluding is required for tight junction barrier function in early Xenopus embryos. Cell Biol, 1997; 138(4):891-899.
3. Fasano. Intestinal zonulin: open sesame! Gut, 2001; 49:159-162.
4. Gassler, et al. Inflammatory bowel disease is associated with changes of enterocytic junctions. Am Physiol Gastrointest Liver Physiol, 2001; 281:G216-G228.
5. Sapone, et al. Zonulin upregulation is associated with increased gut permeability in subjects with type 1 diabetes and their relatives. Diabetes, 2006; 55:1443-1449.
6. Wong and Gumbiner. A synthetic peptide corresponding to the extracellular domain of occluding perturbs the tight junction permeability barrier. Cell Biol, 1997; 136(2):399-409.