CYREX® Laboratories

CLINICAL SPECIFICATIONS

GLIADIN-TRANSGLUTAMINASE COMPLEX

Function:

Transglutaminase is responsible for the deamidation of gluten in the gastrointestinal tract. Tissue transglutaminse (tTG) has been shown to form complexes with gliadin.[1,2,3]

Antibodies Appear:

Celiac disease[1,2,3]
Crohn's disease[4]
Gluten sensitivity[4]
Celiac sprue[5]

Known Cross-Reactions: Non-tissue transglutaminse[5]

Clinical Significance:

Tissue transglutaminase (tTG) plays a significant role in the pathogenesis of Celiac disease.[1] The incubation of tTG with glaidin peptides results in the formation of covalent tTG-peptide complexes, which can adhere to intestinal walls.[1] This positioning allows the gliadin-tTG complex to be recognized by antigen-presenting cells, which produces an immune response cascade that results in autoantibodies.[1,2,3] The production of these autoantibodies may perpetuate a pro-inflammatory gastrointestinal destructive cycle.[4] In an intestinal damage study on pediatric subjects, gliadin-tTG complex was shown to be the most sensitive and specific biomarker out of a list of 17 commonly researched biomarkers.[6]

References:

1. Fleckenstein, et al. Molecular characterization of covalent complexes between tissue transglutaminase and gliadin peptides. J Biolgic Chem, 2004; 279(17):17607-17616.
2. Matthias, et al. Diagnostic challenges in Celiac disease and the role of the tissue transglutaminase-neo-epitope. Clinic Rev Allerg Immunol, 2011; 38:298-301.
3. Matthias, et al. Novel trends in celiac disease. Cellular Molecular Immunol, 2011; 8:121-125.
4. Vojdani. The characterization of the repertoire of wheat antigens and peptides involved in the humoral immune responses in patients with gluten sensitivity and Crohn's disease. ISRN Allergy, 2011: doi:10.5402/2011/950104.
5. Marietta et al. Correlation analysis of celiac sprue tissue transglutaminase and deamidated gliadin IgG/IgA. W J Gastroenterol, 2009; 15(7):845-848.
6. Lerner, et al. Comparison of the reliability of 17 Celiac disease associated bio-markers to reflect intestinal damage. J Clin Cell Immunol, 2017; 8:1.

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