CYREX® Laboratories

CLINICAL SPECIFICATIONS

GLIADIN TOXIC PEPTIDES

Function:

Gliadin Toxic Peptides (GTPs) are a group of peptides highly resistant to digestion. GTPs bind to receptors on intestinal epithelial cells.

Associated With:

Celiac disease[1]
Crohn's disease[1]
Arthritis[2, 3]
Tubulointerstitial injury[4]

Known Cross-Reactions:

Clinical Significance:

The outcome of GTPs varies from individual to individual because different ligands for the same receptor induce very different biological effects.[5, 6] As the name implies, GTPs are targets for tissue receptors. When gliadin binds with this specific chemokine receptor, intestinal zonulin is released.[7] A release of zonulin signals intestinal tight junctions to open, which puts the body at risk for autoimmunity. The ability of GTPs to restructure cytoskeletal proteins,[7, 8] breaks the intestinal barrier allowing for the infiltration of dietary proteins, gut bacterial toxins and other environmental antigens into the submucosa and into circulation. Here, immune responses against alien antigens can lead to autoimmunities. GTPs are more abundantly expressed in the epithelium and lamina propria in patients with Celiac disease in comparison to non-celiac controls.[7] When GTPs bind to IgG+ plasma cell precursors, they can migrate into inflamed tissue, thereby fueling systemic inflammatory autoimmune responses.[8] Once B cells are activated to GTPs, memory B cells secrete antibodies to GTPs, which perpetuates systemic inflammation.[7] In addition to gastrointestinal disorders, GTPs have been shown to play a role in angiogenesis and cancer.[9]

References:

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4. Segerer et al. CXCR3 is involved in tubulointerstitial injury in human glomerulonephritis. Am J Pathol, 2004; 164(2):635-649.
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