

Array 3X Interpretation Guide

Cyrex Array 3X is the most advanced test for wheat and gluten intolerance currently available. The panel includes potential antibodies to gliadin, glutenin, wheat germ agglutinin, non-gluten proteins, gliadin toxic peptides, gluteomorphin, deamidated gliadin and antibodies against tissue transglutaminases.

While this panel cannot be used to diagnose celiac disease, if there are elevated antibodies to alpha-gliadin, tissue transglutaminase-2, and deamidated gliadin, this is highly suggestive of celiac, and further testing, including endoscopy, should be considered.

Specific Markers

WHEAT IGG/IGA

- This is a very general marker for wheat intolerance and is associated with a wide range of conditions.
- Cross-reacts with rye, barley, and soy.

NON-GLUTEN PROTEINS A & B

- Non-gluten proteins make-up the remainder of the wheat proteome.
- Several non-gluten proteins, including α -amylase/protease inhibitor, thiol reductase, serine protease inhibitor (serpin), and β -amylase have been identified as potent allergens in IgE-mediated wheat allergy and/or baker's asthma.

GLIADIN TOXIC PEPTIDES

- A strong indicator of possible Celiac disease, Crohn's disease and other chronic inflammatory processes.
- This peptide lies within the larger gluten protein and has proven to be exceptionally resistant to digestion
- The ability to identify a reaction to gliadin toxic peptide allows patients to remove the trigger before the intestinal barrier becomes damaged and causes serious long-term health issues.

ALPHA-GLIADIN

- Gliadins are a class of protein present in wheat and several other grains, with gluten itself being made up of a fairly even mix of gliadins and glutenins.
- Alpha-gliadin antibodies are elevated in celiac disease (CD) and may also be elevated in non-celiac gluten sensitivity (NCGS).
 - Also associated with autism spectrum disorders and wheat allergy.

- May cross-react with cerebellar proteins
- If antibodies to tissue transglutaminase 2 (tTG-2) are also present, this is most consistent with CD.
 - Confirmation with biopsy may be considered.

OMEGA-GLIADIN

- Another type of gliadin that may be associated with celiac disease, exercise-induced anaphylaxis, and wheat allergy.
- Omega- and gamma-gliadin antibodies are not routinely tested in conventional medicine.

GAMMA-GLIADIN

- Suspected to play a significant role in pathogenesis of CD.

GLUTENIN

- The other major fraction of gluten protein.
- Antibodies IgG and IgA to glutenin are found in patients with celiac disease.
- IgA antibodies to glutenin found in dermatitis herpetiformis.

WHEAT-GERM AGGLUTININ (WGA)

- Antibodies to WGA associated with CD, diabetes, GI disorders, and IgA nephropathy.

DEAMIDATED GLIADIN

- Associated with CD and autism spectrum disorder.
- Cross-reacts with numerous tissues and proteins, including myelin basic protein, synapsin, myocardial peptide, dairy products, corn, oats.
- May be a cause of hidden food sensitivities since it's used in many different roles for a variety of prepared/baked foods.
- Randomized control trials have shown that even people that don't react to wheat flour can react to deamidated gliadin peptides.

GLUTEOMORPHIN + PRODYNORPHIN

- Gluteomorphin and prodynorphin are opioids produced from wheat, and antibodies to these opioids may indicate that gluten is affecting a patient's brain.
- In patients with antibodies to these opioids, beginning a gluten-free diet may cause symptoms of withdrawal.
- Such antibodies are associated with autism spectrum disorder, ADD/ADHD, CD, NCGS, and behavioral problems in children.
- Gluteomorphins also bind to lymphocytes and alter messages they send to the brain, potentially disrupting mood and causing cognitive symptoms.

GLIADIN-TRANSGLUTAMINASE COMPLEX

- Associated with CD.
- These complexes can adhere to intestinal walls. Recognized by antigen-presenting cells and trigger immune response.

Transglutaminases are a family of enzymes that form protein polymers, essential in the formation of barriers and structures such as gut tissue. Antibodies may appear in serum before the clinical onset of symptoms.

TISSUE TRANSGLUTAMINASE-2

- Commonly recognized as a diagnostic test for celiac disease.
- Transglutaminase-2 is an enzyme in the digestive tract targeted in an autoimmune attack triggered by gluten.

TISSUE TRANSGLUTAMINASE-3

- Transglutaminase-3 is expressed mainly in the skin and to a lesser extent in the placenta and the brain.

TISSUE TRANSGLUTAMINASE-6

- Transglutaminase-6 is expressed in neural tissue.
- Antibodies to tTG-6 may be associated with gluten reactivity-related neurological dysfunction such as gluten ataxia.

MICROBIAL TRANSGLUTAMINASE

- Microbial transglutaminase is an enzyme produced by bacteria, which can send signals impacting brain and nervous system function.
- Patients who consume gluten substitutes, may have a reaction to the non-tissue transglutaminase contained within these foods.