

Array 4 Interpretation Guide

Cyrex Array 4 tests for gluten-associated cross-reactive foods and food sensitivities. Since there is antigenic similarity across proteins in dairy, grains, eggs, and other foods, some patients who are going gluten-free still have symptoms. The Array 4 tests for sensitivities for a wide range of non-gluten containing foods.

WHO SHOULD GET TESTED?

- Anyone still experiencing symptoms on a gluten-free diet
- Anyone who wants to consume the foods on Array 4 and wants to know their reactions to them

TEST PREPARATION:

- Patient must have consumed a food on Array 4 within 25 to 30 days of test for accurate results
- Patients can either try to consume each food on the test within 25 to 30 days or only those they wish to test

MOST COMMON CROSS-REACTING FOODS

- Not everyone with gluten intolerance will react; these are just the biggest concerns
- Other foods may cause issues via other mechanisms

Cow's Milk	Gluten Grains
Alpha + Beta Casein	Yeast
Casomorphin	Oats
Milk Butyrophilin	Millet
Whey Protein	Rice
Chocolate (milk)	Corn

SPECIFIC MARKERS

Rye, barley, spelt, kamut

- Gluten-containing grains
- Cross-react with sesame seed, ω -gliadin, and wheat, barley, and soy flours

Yeast

- *Saccharomyces cerevisiae*: yeast used as a leavening agent in baking and as a fermenting agent in brewing
- Cross-reacts with *Candida albicans*, multiple bacteria, human colon tissue, gliadin
- Patients with antibodies to yeast should be screened for intestinal permeability

Buckwheat

- Gluten-free, but some studies show antigenicity with patients with CD and NCGS
- Cross-reacts with latex; patients with buckwheat reactivity should avoid latex products

Milk Butyrophilin

- Protein of the milk fat globule membrane
- Cross-reacts with myelin oligodendrocyte glycoprotein and gliadin

Oats

- Oats do not contain gluten unless cross-contaminated
- Cross-reacts with gliadin

Coffee

- According to Cyrex, the highest cross-reactivity with gliadin!
- Important notes:
 - Cyrex tests for instant coffee antigen, which has shown to be wheat contaminated
 - Whole coffee beans not contaminated with wheat do not show gliadin cross-reactivity
- Cross-reacts with gum arabic

Teff

- Used to make injera, an Ethiopian flat bread, and sometimes found in gluten-free baked goods
- Very little published research
- Probably one of the safest gluten-free alternatives

Potato

- Sensitivity to potato is rare and more often occurs in children (who usually outgrow it)
- Cross-reacts with corn/maize

Casein

- Protein in milk and other dairy products
- Most common food intolerance in kids
- Cross-reacts with gliadin, cerebellar, and soy
- Up to 50 percent of CD patients are intolerant of casein/dairy

Sorghum

- Traditionally used as a sweetener
- Common ingredient in gluten-free baked and processed goods and gluten-free beer
- Cross reacts with corn, millet

Millet

- Consumed as whole grain; also commonly found in gluten-free cereals, baked products, crackers, etc.
- Cross reacts with sorghum, rice, gliadin
- Goitrogenic; patients with thyroid disease should be cautious

Egg

- Egg sensitivity more common in kids than adults; kids will often outgrow it
 - Cooked egg introduced at four to six months may protect against allergy
- Some patients may react only to white or only to yolk (run Cyrex 10 to find out; Array 4 tests combined white/yolk antigen)

Rice

- Consumed as whole grain and as common ingredient in gluten-free foods
- Cross-reacts with wheat, gliadin, corn/maize, soy, millet

Casomorphin

- Opioid peptide formed from undigested casein
- Cross-reacts with cerebellar, gliadin

Whey protein

- Cross-reacts with gliadin
- Dried whey contains lactose and should be avoided by patients with lactose intolerance

Hemp protein

- Used in gluten-free products and as a source of protein and PUFA (hemp oil)
- Very little published research

Amaranth

- Consumed as whole grain; also commonly used in gluten-free cereals and baked goods
- Cross-reacts with quinoa, rice, sunflower

Quinoa

- Consumed as whole grain; common ingredient in gluten-free cereals and baked goods
- Cross-reacts with amaranth, rice, sunflower

Tapioca

- Also known as yuca, cassava, manioc
- Tuber that is cooked and eaten peeled, as pudding or flatbread, and in gluten-free products
- Cross-reacts with banana, avocado, chestnut, kiwi

Sesame

- Common ingredient in baked foods, processed foods, and tahini
- Cross-reacts with almonds, kiwi, poppy seeds, hazelnuts, rye

Chocolate Milk

- This antigen is a combination of milk and chocolate, known to cross-react with gliadin
- Cross-reacts with tobacco, ragweed leaves, instant coffee

Soy

- Used to make milk, tofu, soy sauce, fermented bean paste, natto, tempeh, and oil
- Extremely common ingredient in processed foods
- Cross-reacts with birch pollen, cow's milk, casein
- Studies suggest that soy allergy is becoming more common

Corn

- Eaten whole, also in vegetable mixes, breads, stews, soups, chili, salsa, supplement/pharmaceutical fillers, and much more
- Processed into syrup and used as a sweetener for beverages, treats, and pre-packaged foods
- Cross-reacts with potato, rice, soy, gliadin