CYREX® Laboratories

CLINICAL SPECIFICATIONS

MILK CHOCOLATE

Antigen Made From:

Milk Chocolate [Ingredients: Cocoa butter, Whole milk powder, Chocolate liquor, Emulsifier, Soya lecithin, Natural vanilla flavoring, Cocoa solids: 34% minimum, Milk solids: 20.5% minimum. May contain gluten and nuts.]

Associated With:

Allergy[1,2]
Celiac disease[1]

Known Cross-Reactions: Tobacco leaves, cigarette smoke condensate, ragweed leaves, ground coffee[3]

Clinical Significance:

The presence of antibodies to Milk Chocolate is an indication of food immune reactivity. The offending food and its known cross-reactive foods should be eliminated from the diet. Dark chocolate, in moderation, has many health benefits. It is filled with antioxidants,[4] improves endothelial function,[5] improves gut microbiota,[6] exhibits chemopreventive effects,[4] and activates Factor XII.[3] Pure cacao, dark chocolate and milk chocolate are known to elicit adverse reactions in the form of IgE allergy and delayed intolerance.[1,2]

Note: Array 4 assesses antibodies to Milk Chocolate antigen, which is shown to be cross-reactive to gliadin, while Dark Chocolate + Cocoa (Array 10) does not cross-react with gliadin.[7]

References:

1. Kim et al. Allergy/intolerance to buckwheat and other food products among Swedish subjects with celiac disease. Advances in Buckwheat Research, 2004; 704-709.
2. Orhan et al. Prevalence of immunoglobulin E-mediated food allergy in 6-9-year-old urban schoolchildren in the eastern Black Sea region of Turkey. Clin Exp Allergy, 2009; 39:1027-1035.
3. Becker et al. Tobacco, cocoa, coffee, and ragweed: cross-reacting allergens that activate factor-XII-dependent pathways. Blood, 1981; 58(5):861-867.
4. Weisburger. Chemopreventive effects of cocoa polyphenols on chronic diseases. Exp Biol Med, 2001; 226(10):891-897.
5. Engler et al. Flavonoid-rich dark chocolate improves endothelial function and increases plasma epicatechin concentrations in healthy adults. J Am Col Nutr, 2004; 23(3):197-204.
6. Martin et al. Metabolic effects of dark chocolate consumption on energy, gut microbiota, and stress-related metabolism in free-living subjects. J Proteome Res, 2009; 8:5568-5579.
7. Vojdani and Tarash. Cross-reaction between gliadin and different food and tissue antigens, Food Nutri Sci, 2013; 4:20-32.