CYREX Laboratories

CLINICAL SPECIFICATIONS

RICE PROTEIN

Antigen Made From:
Rice Protein powder

Associated With:
Rice immune reactivity

Known Cross-Reactions: Soy;[1] Wheat, Corn;[2] Gliadin;[3] Millet[2,4]

Clinical Significance:

Rice protein powder is obtained using enzymatic or hexane-extraction methods, which involve some degree of heat.[5,6] Studies on food immune reactivities predominantly use raw food antigens. However, some researchers have noted that heating, or combining, food proteins can change their antigenicity.[7-9]

This array tests for IgG and IgA food immune reactivity.[10,11] Equivocal or out-of-range results indicate antibody reactivity to the tested food antigen. We tested 288 blood donor sera against roasted rice protein antigens at optimal dilution, 10.4% of these donors were IgG and IgA reactive.

Due to cross-reactivity, possible connections between food antigens and human autoimmunity has been previously suggested because proteins in nature can have a similarity in sequence and structure to certain human tissues.[12-15]

Data suggests that eliminating foods identified using IgG antibody food testing can play a role in improvement of symptoms.[16] Because certain food components can lead to gut flora changes and gut permeability, eliminating specified food antigens should result in the reduction of antigenic stimuli and the improvement of symptoms.[16,17]

The results of this food array may be used to develop and implement an immune targeted dietary plan, which includes the avoidance of triggering and known cross-reactive foods. Furthermore, when followed over time, avoidance/prevention treatment plans tailored and supervised by the ordering healthcare professional, may help: (a) repair the gut barrier; and (b) re-establish oral tolerance to the offending food.[16,17]

References:

1. Urisu et al. 16-kilodalton rice protein is one of the major allergens in rice grain extract and responsible for cross-allergenicity between cereal grains in the poaceae family. Int Arch Allergy Immunol, 1991; 96(3):244-252.
2. Lehrer et al. Corn Allergens: IgE antibody reactivity and cross-reactivity with rice, soy, and peanut. Int Arch Allergy Immunol, 1999; 118:298-299.
3. Vojdani and Tarash. Cross-reaction between gliadin and different food and tissue antigens. Food Nutri Sci, 2013; 4:20-32.
4. Yamada et al. The involvement of rice protein 16KD in cross-allergenicity between antigens in rice, wheat, corn, Japanese millet, Italian millet. [Japanese] Arerugi, 1991; 40(12):1485-1492.
5. Fabian and Ju. A review on rice bran protein: its properties and extraction methods. Crit Rev Food Sci Nutr, 2011; 51(9):816-827.
6. Lim et al. Comparison of protein extraction solutions for rice starch isolation and effects of residual protein content on starch pasting properties. Starch, 1999; 51(4):120-125.
7. Sanchez and Fremont. Consequences of heat treatment and processing of food on the structure and allergenicity of component proteins. Rev Fr Allergol Immunol Clin, 2003; 43:13-20.
8. Sathe et al. Effects of food processing on the stability of food allergens. Biotechnol Adv, 2005; 23:423-429.
9. Vojdani. Detection of IgE, IgG, IgA and IgM antibodies against raw and processed food antigens. Nutr Metab (Lond), 2009; 6: 22. DOI: 10.1186/1743-7075-6-22.
10. Barnes. IgG and IgA antibodies to dietary antigens in food allergy and intolerance. Clin Exp Allergy, 1995; 25(Suppl 1):7-9.
11. Mullin et al. Testing for food reactions: the good, the bad, and the ugly. Nutr Clin Pract, 2010; 25(2):192-198.
12. Vaishnav et al. Aquaporin 4 molecular mimicry and implications for neuromyelitis optica. J Neuroimmunol, 2013; 260: 92-98.
13. Agris et al. Plant DNA topoisomerase 1 is recognized and inhibited by human SCI-70 sera autoantibodies. Exp Cell Res, 1990;189:276-279.
14. Lunardi et al. Glycine-rich cell wall proteins act as specific antigen targets in autoimmune and food allergic disorders. Int Immunol, 2000; 12(5):647-657.
15. Bullard-Dillard et al. Anti-Sm autoantibodies of systemic lupus erythematosus cross react with dietary plant proteins. Immunol Invest, 1992; 21(3):193-202.
16. Cordain et al. Modulation of immune function by dietary lectins in rheumatoid arthritis. Br J Nutr, 2000; 83:207-217.
17. Atkinson et al. Food elimination based on IgG antibodies in irritable bowel syndrome: a randomised controlled trial. Gut, 2004; 53(10): 1459-1464.