

## CLINICAL SPECIFICATIONS

# BANANA, COOKED

### Antigen Made From:

Fresh Banana, peeled, then boiled in hot water for 10 minutes

### Associated With:

Cooked Banana immune reactivity

**Known Cross-Reactions:** Latex, Avocado, Kiwi<sup>1</sup>

### Clinical Significance:

One hundred grams of cooked banana contain 1.1% protein.<sup>2</sup> 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.<sup>3-5</sup>

This array tests for IgG and IgA food immune reactivity.<sup>6,7</sup> Equivocal or out-of-range results indicate antibody reactivity to the tested food antigen. We tested 288 blood donor sera against cooked banana at optimal dilution, 25% 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.<sup>8-11</sup>

Data suggests that eliminating foods identified using IgG antibody food testing can play a role in improvement of symptoms.<sup>12</sup> 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.<sup>12,13</sup>

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.<sup>12,13</sup>

### References:

1. Moller et al. Determination and characterization of cross-reacting allergens in latex, avocado, banana, and kiwi fruit. *Allergy*, 1998; 53:289-296.
2. U.S. Department of Agriculture: <http://ndb.nal.usda.gov/ndb/foods>
3. 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.
4. Sathe et al. Effects of food processing on the stability of food allergens. *Biotechnol Adv*, 2005; 23:423-429.
5. Vojdani A. Detection of IgE, IgG, IgA and IgM antibodies against raw and processed food antigens. *Nutr Metab (London)*, 2009; 6: 22. DOI: 10.1186/1743-7075-6-22.
6. Barnes. IgG and IgA antibodies to dietary antigens in food allergy and intolerance. *Clin Exp Allergy*, 1995; 25(Suppl 1):7-9.
7. Mullin et al. Testing for food reactions: the good, the bad, and the ugly. *Nutr Clin Pract*, 2010; 25(2):192-198.
8. Vaishnav et al. Aquaporin 4 molecular mimicry and implications for neuromyelitis optica. *J Neuroimmunol*, 2013; 260: 92-98.
9. Agris et al. Plant DNA topoisomerase 1 is recognized and inhibited by human SCI-70 sera autoantibodies. *Exp Cell Res*, 1990;189:276-279.
10. 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.
11. Bullard-Dillard et al. Anti-Sm autoantibodies of systemic lupus erythematosus cross react with dietary plant proteins. *Immunol Invest*, 1992; 21(3):193-202.
12. Cordain et al. Modulation of immune function by dietary lectins in rheumatoid arthritis. *Br J Nutr*, 2000; 83:207-217.
13. Atkinson et al. Food elimination based on IgG antibodies in irritable bowel syndrome: a randomised controlled trial. *Gut*, 2004; 53(10):1459-1464.