

### About Candida

It is estimated that more than 7/10 people have been colonized with *Candida* species, yet have no observable symptoms. This is because *Candida albicans* can be either a harmless commensal organism or a potentially aggressive pathogen. To prevent *Candida* from becoming pathogenic requires the following: maintenance of normal bacterial flora in the mucosa, a healthy epithelium, and a competent immune system.

*Candida* overgrowth in the gut has been associated with symptoms like clouded thinking, depression, diarrhea, exhaustion, bad breath, fatigue, menstrual pain, thrush, vaginal yeast infections, fungal nail symptoms, and headaches. Patients with compromised immune systems are at risk for invasive and potentially life-threatening systemic *Candida* infections.

### IgG Reactions to Candida

IgG antibodies in circulation may form an immune complex with an allergen/antigen (Ag). This process occurs over several hours to several days and is known as a Type III delayed hypersensitivity reaction. Formation of an immune complex activates the complement pathway and releases inflammatory mediators. The IgG-Ag immune complexes are usually cleared by macrophages, but in the presence of excess antigen, the macrophages may saturate their capacity to remove immune complexes, causing the excess to be deposited in tissue.

Deposition of IgG-Ag complexes causes inflammation and tissue damage, which may contribute to specific health issues. In the case of *Candida*, the degree of reactivity does not necessarily correlate with *Candida* burden, but does indicate the individual is experiencing an immunological response to *Candida* that is present. Reducing the burden of *Candida* in the gut may help to reduce the immunologic response.

### Clinical Significance of Elevated IgG to Candida

A small study (n=80) compared patients who scored high on a standardized questionnaire for fungus-related disease (FRDQ-7) with matched controls. 82% of the patients who scored high on the FRDQ-7 had elevated IgG levels to *Candida* compared to only 37% of the controls. This is the first study to demonstrate a link between elevated IgG to *Candida* and symptom expression. [J Alt Comp Med. 2007;13(10):1129-1133]

Another study looked at IgG antibodies to *Candida* in patients with metastatic renal cancer. The median survival for renal cancer patients who tested negative for *Candida* IgG was >29 months (study length was 29 months), whereas the patients who were positive for *Candida* IgG had a median survival of <18 months: a statistically significant difference. The authors concluded that IgG antibodies to yeast have prognostic significance for renal cancer, and that correction of underlying immune imbalance may be of benefit in prevention. [Cancer Immunol Immunother (2010) 59:1141-1147]

### Monitoring Candida

After exposure ceases (i.e. *Candida* has been eradicated), the IgG antibody levels should begin to decline. However, the laboratory has no data to support the idea that repeat testing is useful for monitoring *Candida* burden, therefore **use of the IgG Candida blood spot to monitor declining Candida levels is not recommended.**



### IgG Candida

**Elevated IgG to Candida may be associated with health problems**

