



IgE (Immunoglobulin E)

IgE (Immunoglobulin E) allergies are the immediate responses to a foreign substance that has entered the body via food or inhalation. IgE allergies can cause very serious symptoms like difficulty in breathing, swelling, and hives. In more serious cases, IgE reactions can lead to anaphylactic shock. Our test measures the blood level of IgE, one of the five subclasses of antibodies. Antibodies are proteins made by the immune system that attack antigens such as bacteria, viruses, and allergens.

They can become confused or cross-reactive and begin attacking foods instead. High titers of IgE are associated with allergic reactions, which is when the immune system overreacts to environmental antigens such as pollen, pet dander, and/or parasitic infections.

IgG (Immunoglobulin G, total)

IgG (Immunoglobulin G, total) are antibodies that provide long-term resistance to infections and have a much longer half-life than an IgE allergy. This food sensitivity can be more subtle, and many people live with it for years, if not their entire lives. Sensitivity symptoms range from fatigue, headache/nausea, seizures, hyperactivity, bloating, mood changes, or dark circles under the eyes. IgG symptoms typically occur within 3-72 hours after the offending food was ingested and they will create ongoing inflammation that can make most conditions worse. Because they can present at such varied times, it is hard to isolate from a diet history alone, and testing becomes particularly useful.

The degree and severity of symptoms vary greatly from person to person because of genetic makeup. The complete elimination of IgG positive foods may bring about important improvements in symptoms of irritable bowel syndrome, autism, ADHD, cystic fibrosis, rheumatoid arthritis, and epilepsy, as demonstrated in numerous clinical studies. It is important to get tested for food sensitivities to know what foods work for the patient's body and what foods don't. If you are only looking at allergies, or IgE, then you would miss the IgG mediated symptoms, creating an incomplete patient picture.

C3 (Complement Component 3)

C3 (Complement Component 3) is a protein of the innate immune system that is activated by microorganisms in the absence of an antibody. When C3d is activated in response to an antigen, the C3 portion attaches to the antigen. This activation, even though it is independent, will amplify the reaction that occurs with total IgG greatly increasing inflammation and symptoms of sensitivity. This same reaction that was designed to amplify inflammation to microorganisms, can be triggered in response to foods. If complement is present, it will amplify an IgG reaction as much as 1000 to 10,000-fold. Therefore, tests that only measure IgG may miss the reactions to foods that are most clinically relevant. C3 will be cleaved into multiple C3 breakdown products, and all of these play a role in increasing inflammatory response to foods.

If complement is known to have a high level of reactivity in the condition you are treating, then foods that confuse and irritate this part of the immune system should be given special attention. See below table for conditions

Other Conditions Associated with Complement

Lupus	Crohn's Disease	Rheumatoid Arthritis	Ulcerative Colitis
Psoriasis	Cystic Fibrosis	Epilepsy	Gout
Scleroderma	Thyroiditis	Reiter Syndrome	Dermatomyositis
Depression	Food Reactions	Increased CRP	Acute Rheumatic Fever
Typhoid Fever	Sarcoidosis	Traumatic Spinal Cord Injuries	Periarthritis Nodosum
Acute Myocardial Infarction	Ankylosing Spondylitis		

IgG4 (Immunoglobulin G Subtype 4)

IgG4 (Immunoglobulin G Subtype 4) is another antibody produced in the body to fight infection. Desensitization injections, or allergy therapies, increase IgG4 to help neutralize the reaction of IgE. This is because of its potential to decrease histamine responses by blocking IgE from attaching to receptors, causing degranulation. Levels of IgG4 are beneficial up to a point, as they block IgE or allergic reactions and result in immune tolerance to foods.

Too much IgG4 causes immune-mediated conditions, known as IgG4-RD that typically affects multiple organ systems in the body. For these reasons, it's important to know the levels of IgG4 in the body to be able to maintain a correct balance. An example of a tissue that is susceptible to higher levels of IgG4 is the esophagus, resulting in Eosinophilic Esophagitis. IgG4 also interferes with the thyroid, contributing to autoimmune thyroiditis, and can also cause IgG4- Related Diseases (IgG4-RD) of the ovaries and prostate.

Conditions Associated with IgG4

Autoimmune pancreatitis	Salivary gland disease	Orbital disease, often complicated by proptosis	Retroperitoneal fibrosis
Increased number of eosinophils	Peripheral Eosinophilia	Atopy	Lymphadenopathy
Sclerosing cholangitis	Mikulicz disease	Sclerosing sialadenitis	IgG4-related submandibular gland disease
Lacrimal gland enlargement	“Idiopathic” retroperitoneal fibrosis	IgG4-related thyroid disease	IgG4-related thyroid disease
IgG4-related kidney disease	Mimics sarcoidosis in the lung	Hypopituitarism associated with IgG4-related hypophysitis	Prostatitis
IgG4-related disease of the ovary	Constrictive pericarditis	Nasopharyngeal disease	Midline-destructive lesion
Eosinophilic Esophagitis			