

Immunoglobulin G and Immunoglobulin E are antibodies involved in delayed and immediate hypersensitivity reactions respectively. Immunoglobulin A provides a protective barrier in the mucosal membranes, which is the body's first line of defense against antigens. The properties and differences between these antibodies are highlighted below:

Important Facts

IgG IgG reactions take hours to days to develop after ingestion of food antigen, making reactions nearly impossible to uncover through elimination diets because of their slow onset.

- IgG antibody-allergen complexes can deposit in any tissue and cause inflammation.
- Because they may result in inflammation, IgG reactions are more frequently associated with chronic conditions.
- IgG reactions are dose-dependent; meaning the foods most frequently consumed or those consumed in large quantity are more likely to produce symptoms.
- The half-life of an IgG antibody is between 23 and 96 days and it takes 5 to 7 half-lives to for antibodies to completely disappear after reactive antigen has been removed. It could therefore take between 3 and 18 months for food specific IgG antibodies to fall to the non-reactive range.
- 80% of the immunoglobulins in blood are IgG. The large number of IgG molecules in blood means that a small amount of blood is sufficient to test 96 foods.

IgA IgA reactions to specific foods may be indicative of increased exposure caused by damage to the intestinal mucosa.

- IgA reacts with food antigens to form an immune complex, but unlike IgG and IgE, does not provoke inflammation. Failure of IgA to maintain adequate anti-inflammatory control may lead to mucosal damage.
- 75% of daily immunoglobulin production is IgA, most of which remains in mucous membranes (e.g. in saliva, tears, bronchial secretions etc).
- The half-life of an IgA antibody is about 6 days.

IgE IgE reactions occur within minutes of exposure to, or ingestion of, food antigen.

- Because reactions occur so soon after exposure, IgE allergies are generally easy to identify through an elimination diet.
- The half-life of an IgE antibody is approximately 1 to 3 days. It takes 5 to 7 half lives to completely eliminate a specific IgE antibody, so levels of IgE may be undetectable through this test within a few days of exposure to food antigen.
- IgE reactions are generally more acute, like hives or anaphylaxis.
- IgE reactions typically affect airways, skin, or intestines.
- Only 1 to 2% of immunoglobulins in blood are IgE, which is why a larger amount of blood is required for IgE testing.

When to Order

- used to find hidden food reactions, resolve current symptoms and/or prevent hidden chronic inflammation from exacerbating systemic disease.
- use > 2 years of age.
- see collection instructions for details on when and how to collect.

- consider testing for food specific IgA when mucosal damage is suspected (e.g. Crohn's disease, colitis).
- consider testing for food specific IgA when IgG reactions are negative, but patient is symptomatic.

- semi-quantitative IgE is best for assessing reactions to regularly consumed foods. It is **not** useful for diagnosing intermittent acute IgE-like (e.g. hives) reactions to foods.
- see collection instructions for details on when and how to collect.



IgG, IgA, IgE

IgG, IgA and IgE food reactions may contribute to a variety of health problems.

