

IgE Food Allergy



Knowing the basics about IgE food allergy will deepen your understanding of mast cell activation disease.

What are IgE Antibodies?

The immune system protects the body from infection by producing antibodies that attack specific bacteria or viruses. We make five different antibodies or immunoglobulins (abbreviated Ig) - IgG, IgM, IgA, IgD and IgE. Some people have a genetic tendency to produce IgE antibodies to normally harmless substances (atopic condition). These harmless substances are “allergens” for that individual. Atopic individuals often produce IgE to many different allergens (see table below).

Food-Specific IgE Food Allergy

If your immune system produces food-specific IgE, you may suffer with immediate allergy symptoms when you eat that food.

IgE is produced against a specific protein in the food (there are exceptions, beyond to scope of this article). In peanut allergy, for example, the immune system is making IgE against one protein in peanut (there are about nine different allergenic proteins in peanut).

The IgE attach to mast cells and become a receptor on the mast cell surface (see Mast Cell Activa-

tion). If the IgE receptors encounter the food protein, the mast cells activate and release their inflammatory chemicals which cause immediate symptoms.

Typical IgE food allergy symptoms include:

- Digestive – sudden vomiting, diarrhea,
- Respiratory - wheezing, difficulty breathing (asthma),
- Skin - hives, swelling, itching, tingling in the mouth or face,
- Other -headache, impending doom.

Severe symptoms (anaphylaxis) can include a sudden drop in blood pressure (shock) and severe asthma.

IgE Food Allergy Diagnosis

Two different tests are available to determine if a patient’s immune system has produced food-specific IgE.

Blood tests –the laboratory tests the patient’s blood for IgE to the specific food(s) or food protein(s) specified by the physician

Skin tests – the physician applies the food to the patient’s skin and pricks the skin. If the body has made IgE against the food, the skin mast cells will activate, and the area around the prick will swell (wheal).

Proper Use of Food Specific IgE Tests

These tests are valuable tools to diagnose IgE food allergy. If a patient reports immediate allergy symptoms after eating a food, an IgE food allergy would be suspected, and the physician would determine if the patient’s immune system is producing IgE to that food. If the test is positive, the physician would likely confirm the diagnosis. Here’s an example. A patient reports typical allergic symptoms (hives, swelling, etc.) after eating shrimp. The shrimp IgE blood test is positive (indicating the immune system is producing IgE to

Example allergen	If the allergen is...	Typical symptom
Plant pollen	Inhaled through the nose	Hay fever
Plant pollen	Inhaled through the lungs	Difficulty breathing (asthma)
Food or medication	Ingested through the digestive system	Immediate inflammatory symptoms
Lotions; laundry detergent	On the skin	Eczema or hives

shrimp), which supports the patient's history of immediate symptoms and the patient is diagnosed with a shrimp IgE allergy.

If the test is negative (i.e. the immune system is not producing IgE to that food), an IgE food allergy to that food is unlikely. The physician and patient would consider other potential reasons for the symptoms.

At follow-up appointments, blood or skin tests are often used to see if the IgE levels have dropped, which indicates the patient may have gained tolerance to the food.

Improper Use

Unfortunately, these tests are often used as food panels (testing many foods) rather than individual foods to confirm or refute the patient's reported symptom history (as described above). **Food panels have a very high rate of "false positives."** In other words, the patient is producing food-specific IgE, but they can eat the food without immediate symptoms - which means they do not have an IgE allergy to that food. Food panel testing often leads to unnecessary food restrictions. Also, there have been a few cases of patients that were eating and tolerating an IgE positive food, but suffered immediate, anaphylactic symptoms when they eliminated and later re-introduced the food.

Food panels are meaningless for two reasons:

#1: food-specific IgE tests are used to help diagnose IgE food allergy, which produce immediate, definite symptoms each time the patient eats the food (there are rare exceptions). The reactions are usually obvious. If the patient is having subtle or inconsistent symptoms, their history does not support IgE food allergy, and food-specific IgE results will be meaningless.

#2: food-specific IgE blood tests do not give information about any other food sensitivities. If the test is negative for a specific food, it means that IgE food allergy is unlikely, but does not tell you

anything about other food sensitivity mechanisms. Sometimes physicians and patients think that a negative test means that the patient should tolerate the food. As discussed in [Food Sensitivity Overview](#), there are many different food sensitivity mechanisms. In the above example, perhaps the shrimp was not fresh and had become high in histamine.