# Diagnosis of Food Allergy

Rebecca Sharon Chinthrajah, MD[a,*], Dana Tupa, MS[b], Benjamin T. Prince, MD[c,1], Whitney Morgan Block, BS, MSN, RN, CPNP, FNP-BC[d], Jaime Sou Rosa, MD, PhD[a], Anne Marie Singh, MD[e], Kari Nadeau, MD, PhD[a]

**KEYWORDS**

• Food allergy • IgE-mediated • Non–IgE-mediated • Skin-prick testing
• Oral food challenge • Component testing • Elimination diets

**KEY POINTS**

- Food allergies consist of a group of diseases that result from immunologic, adverse reactions to foods.
- Clinical history is paramount in the diagnosis of food allergy.
- Skin tests and specific immunoglobulin E (IgE) can indicate sensitization that may not be clinically relevant.
- It is important to recognize and distinguish IgE-mediated reactions, as these can be life threatening and require significant patient education.
- Specialists, such as allergists/immunologists and gastroenterologists, play an important role in the diagnosis and management of food allergies.

## INTRODUCTION

The prevalence of food allergies in children and adults has been increasing over the last few decades.[1] Food allergies are due to abnormal immunologic responses following ingestion of the offending food. Multiple food allergy entities can

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[a] Division of Allergy, Immunology, and Rheumatology, Department of Pediatrics, Sean N Parker Center for Allergy Research, Stanford University, Stanford University School of Medicine, 269 Campus Drive, CCSR 3215, MC 5366, Stanford, CA 94305-5101, USA; [b] Sean N Parker Center for Allergy Research, Stanford University, Stanford University School of Medicine, 1291 Welch Road, Grant Building S303, Stanford, CA 94305, USA; [c] Ann & Robert H. Lurie Children's Hospital of Chicago, Northwestern University, Feinberg School of Medicine, 225 East Chicago Avenue Box 60, Chicago, IL, USA; [d] Sean N Parker Center for Allergy Research, Stanford University, 2500 Grant Road, PEC, 4th Floor Tower C, Mountain View, CA 94040, USA; [e] Ann & Robert H. Lurie Children's Hospital of Chicago, Northwestern University Feinberg School of Medicine, 240 East Huron Street, M-317, McGaw Pavilion, Chicago, IL 60611, USA
[1] Present Address: 221 North Front Street, Unit 304, Columbus, OH 43215.
* Corresponding author. Division of Pulmonary and Critical Care Medicine, Department of Medicine, Sean N Parker Center for Allergy Research, Stanford University, Stanford University School of Medicine, 269 Campus Drive, CCSR 3215, MC 5366, Stanford, CA 94305.
*E-mail address:* schinths@stanford.edu

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be characterized based on the immunologic response. For the purposes of this review, the diagnosis of food allergies is divided into immunoglobulin E (IgE)-mediated reactions, non–IgE-mediated reactions, and mixed allergic reactions (Table 1). The most important diagnostic tool is the clinical history, which is aided by diagnostic testing such as skin and blood tests to assess for food-specific IgE. When necessary, the diagnosis is confirmed with oral food challenges and elimination diets to assess for clinical symptoms related to the ingestion of an implicated food.

## DIAGNOSING IMMUNOGLOBULIN E–MEDIATED FOOD ALLERGIES

### *Clinical History*

When the clinician suspects an IgE-mediated food allergy, the medical history and physical examination can provide a good pretest probability of an IgE-mediated allergy.[2,3] It is important for the clinician to note the dietary history, foods involved at the time of the allergic event, timing of exposure to the onset of symptoms,[4] route of exposure, nature and duration of symptoms, and treatments received (Table 2). Supplemental factors, such as concomitant medication use or alcohol ingestion, may play a role in the reaction severity.[5] Symptoms during an IgE-mediated allergic reaction can range from mild to severe, involving one or multiple organ systems (Table 3). A history consistent with anaphylaxis, an immediate, severe, allergic reaction involving multiple organ systems, after the ingestion of a food is highly suggestive of an IgE-mediated food allergy. The timing and events during an allergic episode, such as the timing of exercise in food-dependent, exercise-induced anaphylaxis (FDEIAn), and the type (cooked vs raw) and amount of the suspected offending food ingested, are important parts of the history to be elicited. Comorbid conditions such as asthma, allergic rhinitis, or atopic dermatitis might indicate an increased risk of IgE-mediated food allergy.[6]

It is important to consider and rule out, if necessary, other diseases, triggers, and syndromes that may be mistaken for IgE-mediated food allergies, which may include allergic reactions caused by:

- Medications or insect stings (possibly around the same time of food ingestion)
- Metabolic disorders: gluten and lactose intolerances and sensitivities
- Toxic reactions: food poisoning caused by toxins, such as histamine in scombroid poisoning
- Chemical exposures, such as chlorine or fragrant perfumes, which may cause rhinitis, skin irritation, or exacerbation of asthma
- Viral syndromes that may cause rhinorrhea and/or urticaria

**Table 1**
**Different types of food allergies**

| IgE-Mediated Reactions | Mixed Allergic Reactions | Non–IgE-Mediated Reactions |
|---|---|---|
| Food ingestion reactions within 2 h of ingestion | Atopic dermatitis | Food protein–induced enteropathy |
| "Alpha Gal" allergy | Eosinophilic esophagitis | Food protein–induced enterocolitis |
| Oral allergy syndrome | Eosinophilic gastritis | Food protein–induced proctitis |
| Food-dependent exercise-induced anaphylaxis | — | Celiac disease |