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Food Allergy: Causes and Mechanism

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Abstract—*Centuries ago, Lucretius said that one man's food may be another man's poison. Over the past 2 decades, the prevalence of allergic disorders has increased dramatically. Food allergy is an IgE-mediated (immunoglobulin) abnormal response to a normally tolerated food protein. It occurs when a food component, mostly an incompletely digested protein is absorbed in the blood stream and elicits an immune response. Allergic reactions can include hives, flushed skin or rash, coughing or wheezing, dizziness and/or lightheadedness, difficulty breathing and even death. Although a large number of foods have been incriminated in food allergies, cow's milk and egg are important allergenic foods in infants and young children whilst tree nuts, peanuts, shellfish, fish, soy and certain fresh fruits such as apple are more important in adults. The best way to prevent unintended exposure to a food allergen is the complete avoidance of the offending food. An allergenic protein may contain a single epitope that is repeating or may have several different epitopes. Since foods are often subjected to a variety of processing conditions like thermal processing, fermentation, ultrafiltration, irradiation etc. it may destroy existing epitopes on a protein or may generate new ones as a result of change in protein conformation. The main food processing technologies used for preventing or reducing the immune response to allergenic food proteins undergoing digestion and leading to IgE-mediated FA have been discussed here. Nowadays, new methods for producing hypoallergenic foods are being explored. It remains important to preserve food quality and food identity while altering food protein to reduce food allergenicity.*

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