Food allergies are abnormal immunological responses to a particular food or food component, usually a naturally occurring protein. Two types of abnormal immunological responses can occur - immediate hypersensitivity reactions and delayed hypersensitivity reactions, and both occur upon ingestion of specific foods.

The detection of specific IgE has been incorporated into current guidelines for the identification of allergy inducing agents (Boyce et al. 2010; Soares-Weiser et al. 2014) and has been significantly improved by the availability of recombinant allergens. This molecular allergy diagnosis or component resolved diagnosis (CRD) allows for the detection of specific and cross-reactive IgE antibodies (Canonica et al. 2013; van Gasse et al. 2015; Werfel et al. 2015). Research shows that the potential of an allergen to trigger an IgE response, as well as cross-reactivity, is connected to its structure. IgE antibodies bind to certain epitopes on individual allergen components that can be grouped into a few relevant protein families like heat resistant storage proteins, lipid transfer proteins and PR-10 proteins (Renz et al. 2010).

In peanut, two related allergens, Ara h 2 and Ara h 6, both conglutin storage proteins, account for the majority of the IgE immune response and are considered the main elicitors of anaphylaxis. Food and pollen usually comprise more than one allergenic component that may share various degrees of identity and might induce cross-sensitivity due to cross-specific IgE antibodies (Turnbull et al. 2015; Werfel et al. 2015). A high percentage of patients allergic to birch pollen have been reported to also be allergic to soybean.

Besides IgE antibodies against Bet v 1, a major birch allergen, IgE antibodies to Gly m 4, a major soybean allergen and belonging to the same protein family as Bet v 1, were also detected in the sera of these patients (Berkner et al. 2009; Mittag et al. 2004; Werfel et al. 2015).

In 2009, Holzhauser et al. described another soybean allergen, Gly m 5. When analyzing patient sera, the authors found IgE antibodies against Gly m 5 preferentially in those sera from patients that suffer from anaphylaxis upon exposure to soybean. IgE antibodies against Gly m 4, however, appeared to be present preferentially in the serum of patients suffering only from mild symptoms. DIARECT's recombinant allergens are produced in either E. coli or the baculovirus/insect cell expression system.

### References

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In some countries the use of certain allergens in diagnostic tests may be protected by patents. DIARECT is not responsible for the determination of these issues and suggests clarification prior to use.