

## MOLECULAR ALLERGOLOGY

 **ImmunoCAP<sup>®</sup>**  
ALLERGEN COMPONENTS

Allergy as you have  
**never seen it**

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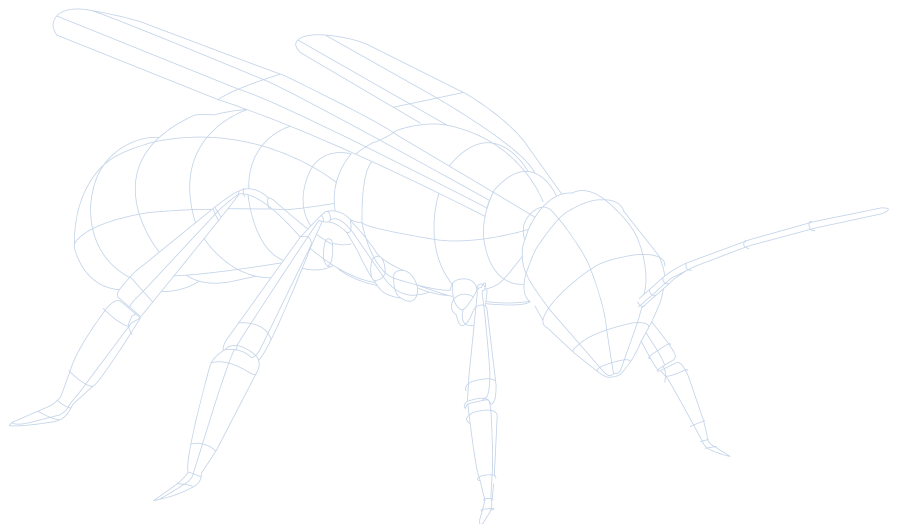
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# How to better define and manage allergy

An allergy diagnosis is based on a detailed case history, clinical observations and results from IgE testing. In some cases, an allergen challenge is also required. The diagnostic procedures mainly include skin tests and blood testing, or both. Traditionally, results from specific IgE testing have been used to confirm a suspicion of allergy and to determine the offending allergen, or to rule out allergens for which test results are negative.

The new approach of Molecular Allergology takes the diagnostics one step further by quantifying the allergen specific IgE antibodies to single, pure allergen molecules. The enhanced precision thereby obtained strengthens the clinical utility of IgE testing by enabling risk assessment and allowing symptoms caused by cross-reactivity to be explained. Molecular Allergology contributes to an improved diagnosis and supports the doctor in improved patient management.

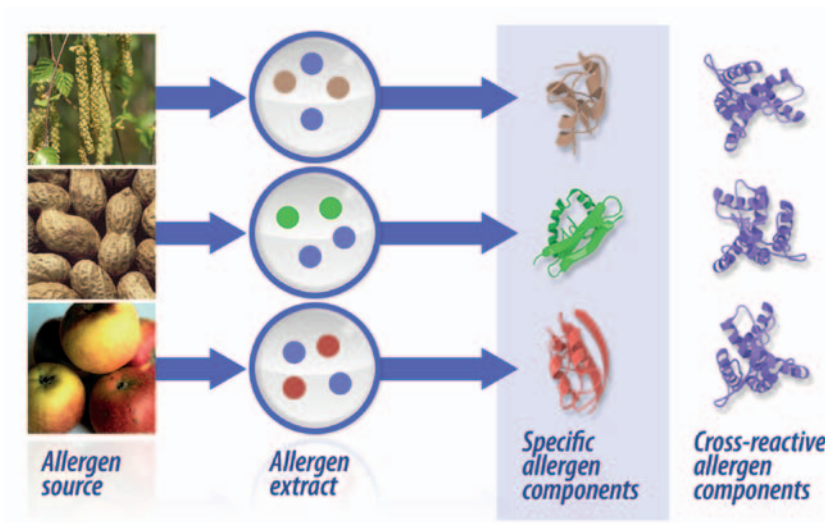
- *Is your patient optimally managed?*
- *Is there a risk for systemic reactions?*
- *Does the patient have a genuine allergy or is it caused by cross-reactivity?*



# Allergen components – closing in on allergy

From an allergen source, single allergen components can be produced. Sensitization to these components is then measured individually in separate tests, helping to pinpoint, on an exact molecular level, which component the patient is sensitized to. This information provides the basis for a refined diagnosis of the allergy.

In Molecular Allergology, extract-based testing is used together with component-specific analyses. The extract gives the overall answer if the patient is sensitized to the particular allergen source, while the components add vital information about risk, specificity and cross-reactivity.



## What can allergen components tell us?

Allergen components are proteins that, based on structural similarity, are grouped into different protein families\*. The consequences of being sensitized to members of these families depend on properties they have in common; they are present in different amounts in the sources and they have different stabilities. Some allergen components are specific and some are cross-reactive.

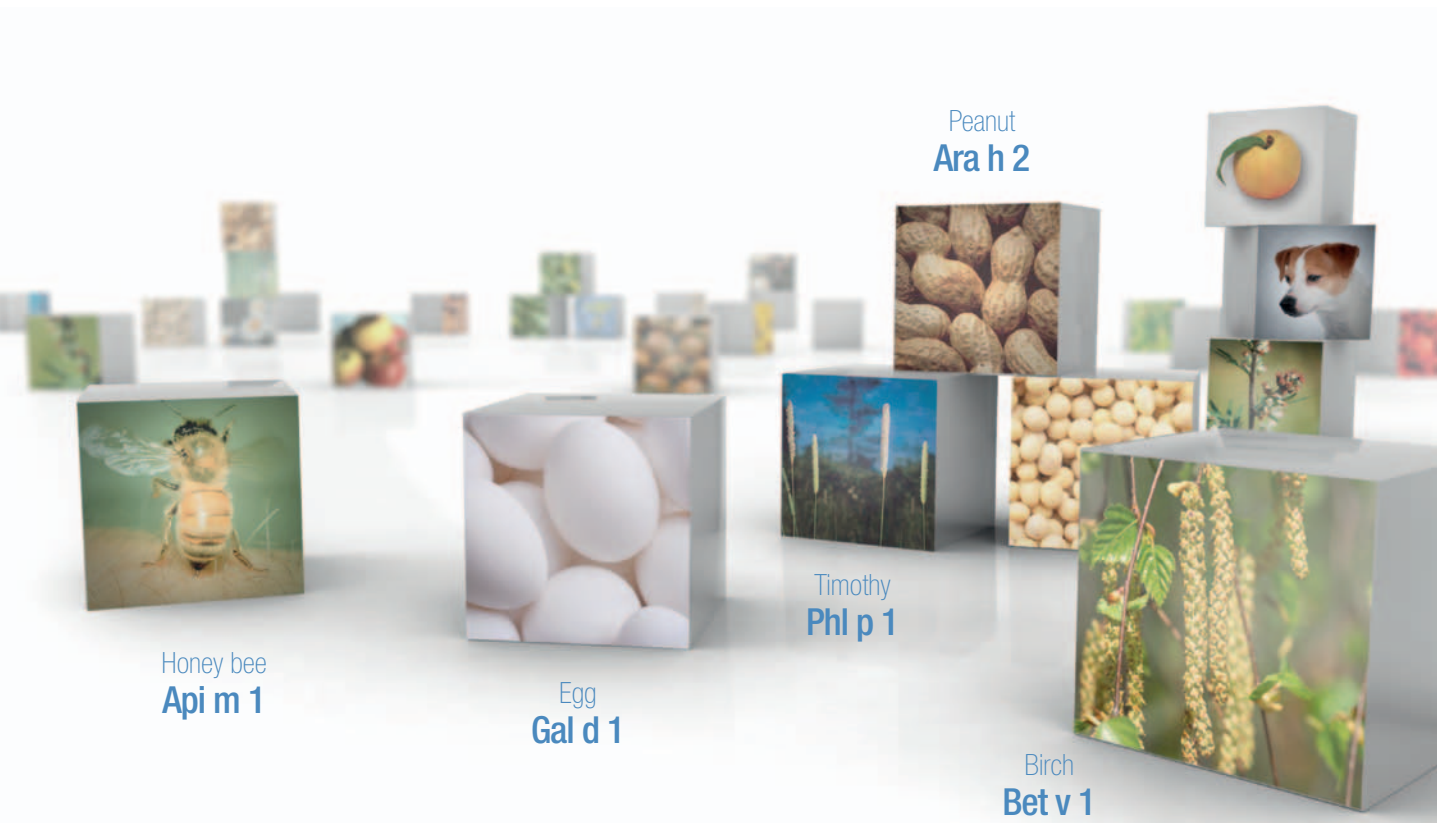
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\* Exceptions are the CCDs which are carbohydrates linked to proteins.

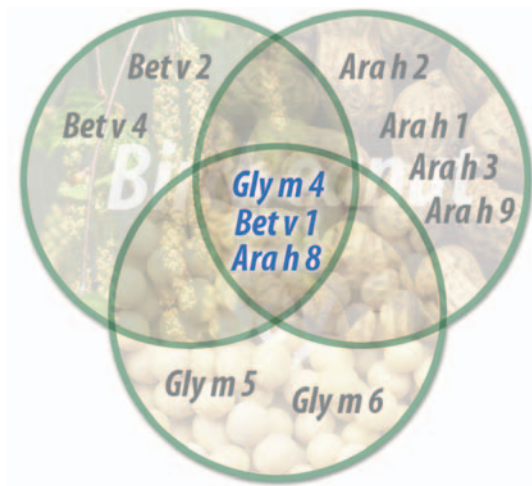
# Specific and cross-reactive components

## Specific components

Each allergen source typically contains both specific and cross-reactive allergen components. Specific allergen components are more or less unique for their source, found only in a limited number of closely related species. Each allergen source may contain one or a few specific allergen components. Sensitization to any of these indicates a genuine sensitization, meaning that the corresponding allergen source is the primary cause of the clinical symptoms.



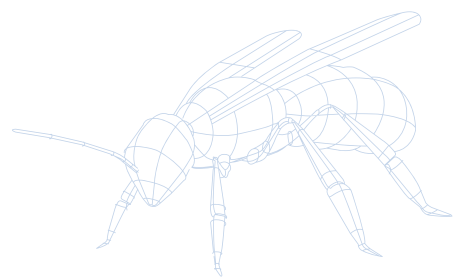
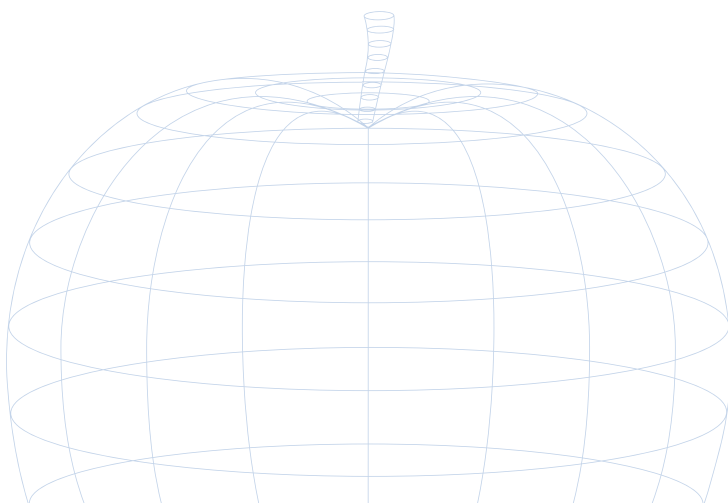
*The naming of components is based on the Latin name of the allergen source and the number is in order of their identification.*



### Cross-reactive components

Cross-reactive allergen components are more widely distributed and may be shared between a very wide range of allergen sources. Due to their high degree of structural similarity, they may cause IgE antibody cross-reactivity.

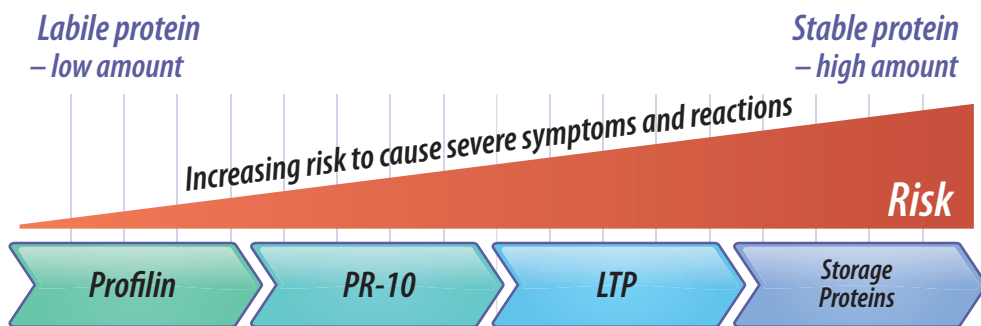
Cross-reactivity can be exemplified by birch pollen-related food allergy, a syndrome affecting many birch pollen-allergic patients. The underlying molecular reason for this cross-reactivity is that most birch pollen-allergic patients have specific IgE antibodies to the component Bet v 1. Bet v 1 has structural similarity to related proteins in many foods, for instance soy and peanut. Thus, the patient's IgE antibodies to birch Bet v 1 cross-react with these related proteins in soy or peanut.



# Clinical consequences of sensitization

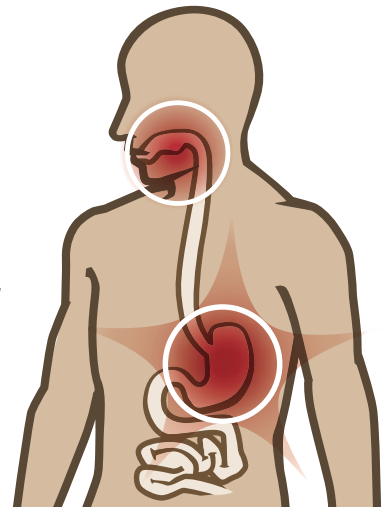
## Protein stability and amount

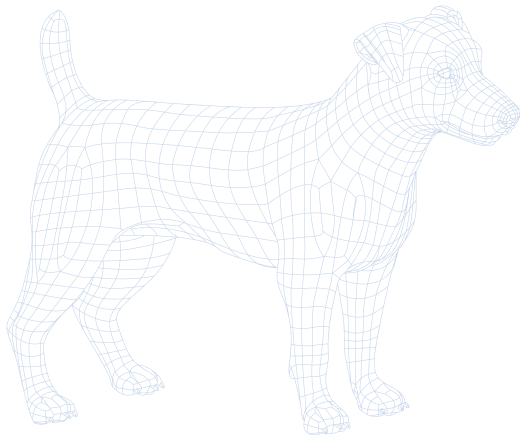
Food allergen components display different stability to heat and digestion, and their content in the allergen source varies. Both stability and amount are reflected by the protein family to which the component belongs. Therefore, by knowing the sensitization profile of the patient and to which family the identified components belong, it is possible to assess the risk associated with the sensitizations.



## Local and systemic reactions

Clinically, sensitization to proteins that are easily broken down or modified by processing, cooking or by enzymes in the mouth or digestive system, will mainly give rise to local reactions, such as oral allergy syndrome. Stable proteins, on the other hand, may reach the circulation in a more or less intact form, where they potentially can elicit systemic reactions. The ingested or inhaled amount of the allergen component is also very important for the clinical consequences. Thus, large quantities of rather labile proteins may also give rise to systemic reactions.





# What does Molecular Allergology add?

## **Assess the clinical risk for reaction**

Molecular Allergology enables you to draw conclusions on the risk connected with the sensitization. Sensitization to allergen components that are stable may elicit systemic reactions, as well as local reactions, while sensitization to labile components is connected mainly with local reactions.

## **Explain symptoms due to cross-reactivity**

Symptoms elicited by cross-reacting antibodies can be distinguished from those caused by genuine sensitization, which is important for patient management and for giving adequate avoidance advice. In cases where only cross-reactive sensitization is identified, further testing to find the primary sensitizer should be undertaken.

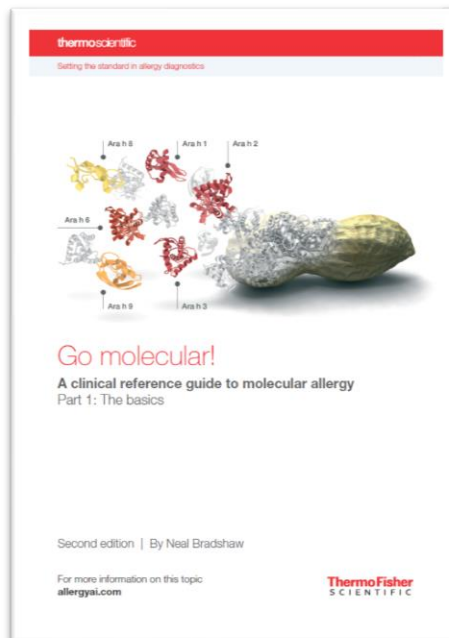
## **Identify the right patients for Specific Immunotherapy**

Sensitization to specific allergen components is essential for successful Specific Immunotherapy. By matching patients having a genuine sensitization with an extract from the relevant source, treatment outcome is improved.

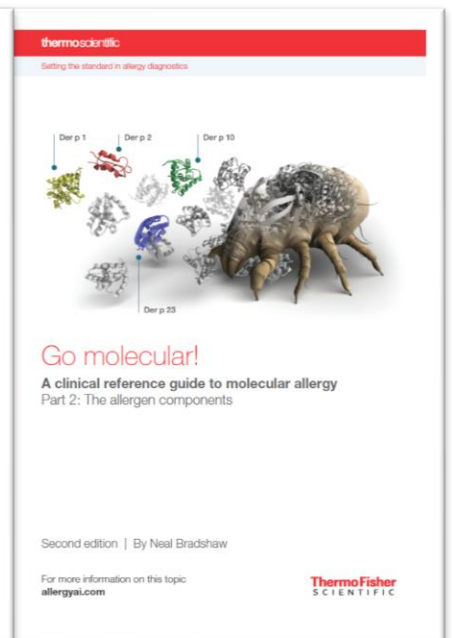




## Product Catalogue



## Go molecular! A clinical reference guide to molecular allergy



## ImmunoCAP allergy blood testing: Why, who and what difference it makes

**Please contact us for any information above!**

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