

ALEX²

Building allergy puzzles



THE FACTS ON ALLERGY COMPONENT TESTING

The Allergy Xplorer (ALEX²) test is a multiplex IgE immunoassay that contains both whole allergen extracts and molecular allergen components. Multiple allergens are detected in one assay, providing a cost-effective way to examine IgE sensitisation patterns, especially in patients with complex symptoms, poly-sensitisation and high levels of total serum IgE.

Allergy component testing is a diagnostic strategy that is also referred to as component-resolved diagnostics, molecular-based diagnostics or precision allergy molecular diagnostics. It refers to the testing of molecular allergen components to detect the presence of IgE directed to primary, cross-binding or pan allergens (Figure 1). Over the last decade, the availability of allergenic molecules has ushered in a new phase of allergy diagnostics termed precision allergy molecular diagnostics. This approach has led to the improvement of personalised management of allergic diseases.

Laboratory tests only indicate sensitisation. The diagnosis of allergy can only be made by a clinician as it is based on the presence of both symptoms and sensitisation. Traditional allergen-specific IgE testing against whole allergen extracts is a tool to identify sensitisation, but it cannot distinguish cross-sensitisation between homologous protein molecules which may lead to diagnostic uncertainty.



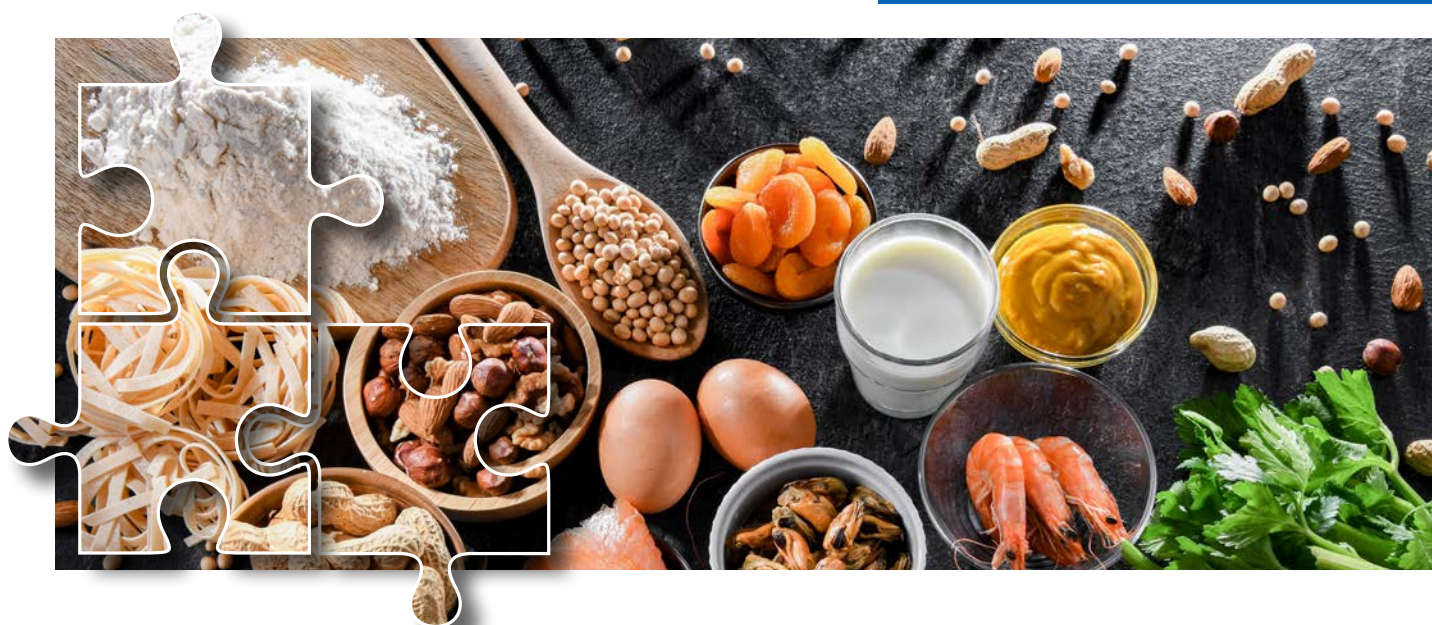
ABOUT ALEX²

- Includes ~300 whole allergen extracts and molecular components
- Only 0.5 mL of blood required
- Results available within ~7 working days



WHY ALEX²

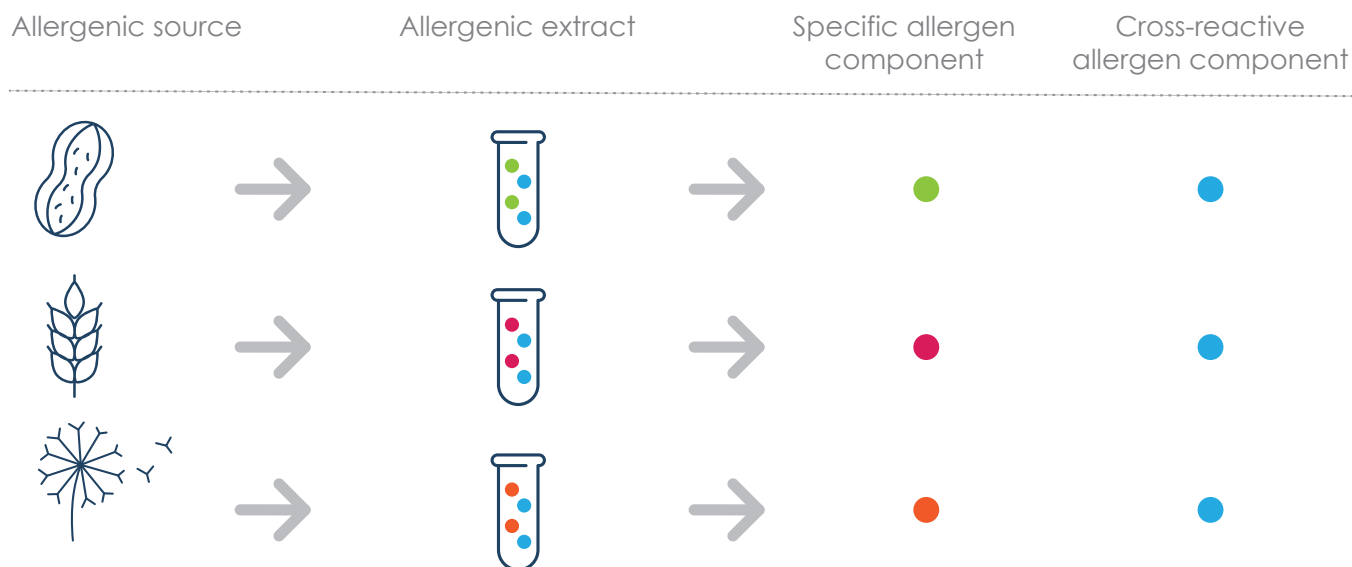
- A comprehensive IgE-based allergy test
- Includes a user-friendly interpretive report
- Increases diagnostic accuracy
- Improves allergy management



PATHOLOGY SOLUTIONS ARE IN OUR DNA



FIGURE 1: DEMONSTRATION OF ALLERGEN EXTRACTS, SPECIFIC ALLERGEN COMPONENTS AND CROSS-REACTIVE ALLERGEN COMPONENTS PRESENT IN POLLEN AND PLANT-BASED FOODS

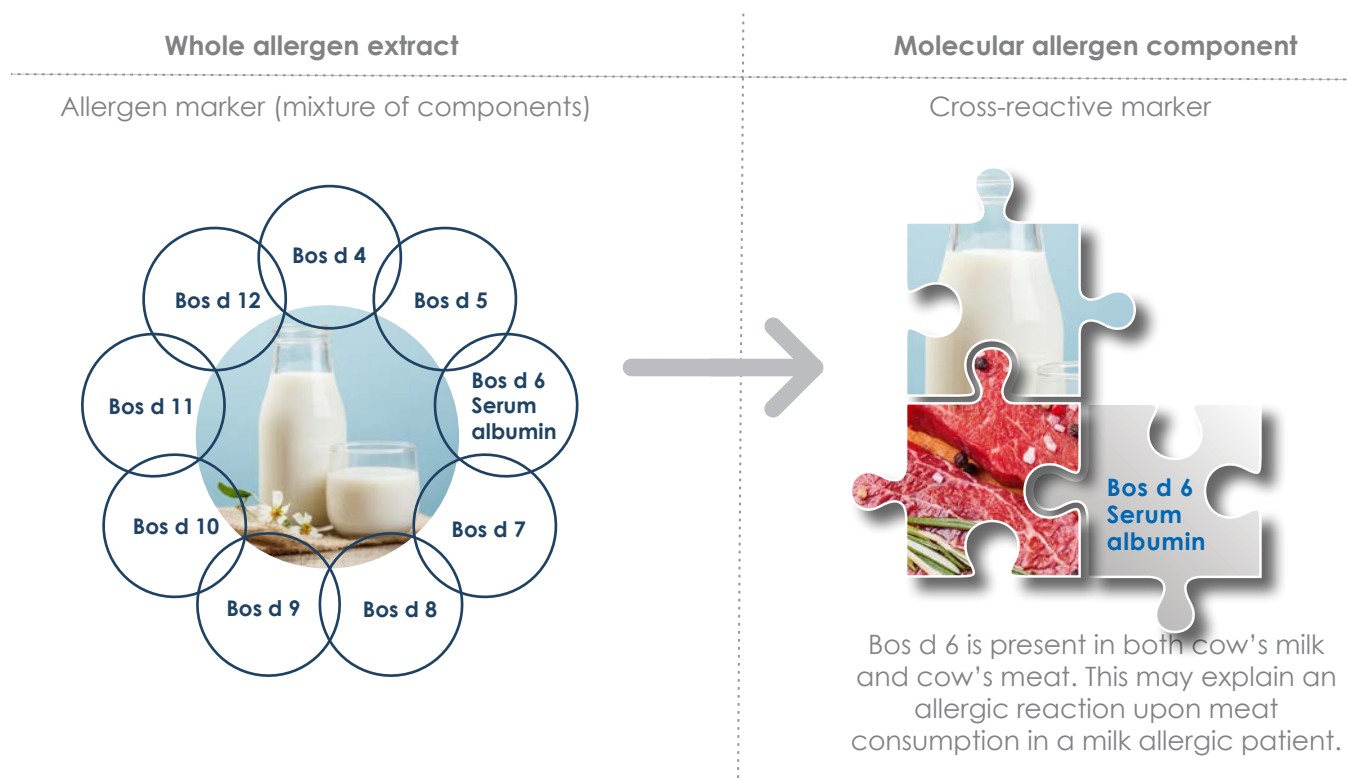


ALLERGY COMPONENT TESTING IS USEFUL TO:

- Distinguish between true allergy sensitisation, cross-reactivity and cross-sensitisation.
 - **True allergy sensitisation** is indicated by identifying unique markers of a specific allergen which is considered to be the major allergenic component e.g. Bos d 8 is the major heat stable protein in milk that can lead to a severe and persistent allergy (Figure 2).
 - **Clinically relevant cross-reactivity** is due to cross-reactive markers that share a similar structure to specific allergens and can induce an immune response e.g. Bos d 6 is a serum albumin found in both cow's milk and cow's meat, causing potentially clinically relevant allergy symptoms with the consumption of beef and milk (Figure 2).
 - **Clinically irrelevant cross-sensitisation** will manifest as IgE sensitisation to a measured allergen in the absence of clinical symptoms.



FIGURE 2: EXAMPLE OF THE CLINICAL UTILITY OF ALLERGY COMPONENT TESTING



ADVANTAGES OF ALEX²

- Explain IgE poly-sensitisation against pollens and plant-based foods (e.g. peanut, wheat and soy) where pollen is the true sensitiser whilst cross-reactive carbohydrate determinants (CCDs) explain the positive food IgE results in the absence of a primary food allergy (Figure 1).
- Detect cross-reactive allergy syndromes e.g. pollen-food, latex-fruit, cat-pork and bird-egg. In food-pollen syndrome, patients with a primary pollen allergy may experience allergy symptoms when consuming cross-reactive foods such as fruit and peanuts.
- Identify the risk allergens in order to predict the severity of an allergic reaction e.g. patients allergic to peanut storage proteins may be at higher risk for anaphylaxis.
- Identify children who are likely to outgrow a food allergy e.g. cow's milk.
- Improve the selection of patients for whom immunotherapy (desensitisation) is likely to be effective e.g. for honey bee venom.
- Assist with dietary recommendations e.g. patients who are likely to tolerate milk in baked products but not fresh milk.
- Prevent unnecessary food avoidance.
- Investigate anaphylaxis where the triggering allergen is unknown.
- Provide appropriate guidance on pet selection e.g. gender of dogs and type of pet.

Furthermore, a molecular sensitisation profile may serve as a biomarker for disease progression, e.g. IgE sensitisation against some house dust mite components at a young age may be predictive for the development of asthma later in life.

For more information, contact our experts on 012 678 0613/4.