Suspicion of peanut allergy

ImmunoCAP® Is it allergy?

Is it allergy? Risk for severe reactions?

Test with ImmunoCAP® Allergen
Peanut (f13) + Ara h 2 (f423) + Ara h 8 (f352)

Peanut: neg Ara h 2: neg Ara h 8: neg	Peanut: pos Ara h 2: neg Ara h 8: pos	Peanut: pos Ara h 2: pos
Low risk for severe reactions to peanut	Risk for some reactions to peanut OAS more likely due to birch pollen cross reaction	High risk for severe reactions to peanut
	Recommendations for further testing: Risk grading: Ara h 1 (f422) ●●● Ara h 3 (f424) ●●● Ara h 9 (f427) ●●● Birch (t3) ●	

●●●● ***Ara h 2 – ImmunoCAP® f423 rAra h 2***
- **Often associated with systemic and severe reactions.**
- Associated with cross-reactivity to tree nuts, e.g. almond and brazil nut.
- A peanut storage protein.

●●● ***Ara h 1 – ImmunoCAP® f422 rAra h 1***
- **Often associated with clinical reactions.**
- Associated with cross-reactivity to nuts and legume seeds, e.g. lentil and pea.
- A peanut storage protein.

●●● ***Ara h 3 – ImmunoCAP® f424 rAra h 3***
- **Often associated with clinical reactions.**
- Associated with cross-reactivity to lupin and soybean.
- A peanut storage protein.

●●● ***Ara h 9 – ImmunoCAP® f427 rAra h 9***
- **Often associated with systemic and more severe reactions in addition to Oral Allergy Syndrome (OAS). In peanut however, severe reactions to LTP are not well documented.**
- Stable to heat and digestion, risk for reactions also to cooked food.
- A LTP (Lipid Transfer Protein).

●● ***Ara h 8 – ImmunoCAP® f352 rAra h 8***
- **Often associated with local reactions such as OAS.**
- A marker for birch-pollen related cross-reactions to peanut.
- A heat labile protein, cooked food is often tolerated.
- A PR-10 protein.

● ***Birch (t3)***

References: Astier C et al. J Allergy Clin Immunol 2006;118:250, Flinterman AE et al. Clin Exp Allergy 2007;37:1221, Koppelman S.J et al. Clin Exp Allergy 2004;34:583, McDermott RA et al. Clin Exp Allergy 2007;37:752, Mittag D et al. J Allergy Clin Immunol 2004;114:1410, Peeters KA et al. Clin Exp Allergy 2007;37:108

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Case Studies

ImmunoCAP
Is it allergy?

Clinical presentation	Reason for requesting ImmunoCAP Allergen Components	Results of ImmunoCAP Allergens (kU/l)
• **17 year-old boy** with increased problems of eczema, possible asthma. Consultation for a food allergy investigation. • **Eczema since 1 year of age**, rhinitis during spring, occasions with breathing problems during past three years. Allergy to cat, grass and birch. Worsening of eczema the last six months. • **Family history.** No known allergies in the family. • **SPT results** Positive +3 for birch, grass and cat Positive +1 for dog, peanut, hazelnut and soy Negative for grass, wheat and soy. • **ImmunoCAP Specific IgE (kU/l)** Hazelnut > 100 Peanut 5.1 Soy 2.0 Rye 1.2 Wheat 1.1 Dog 1.9	Decided to perform a risk assessment of the peanut and hazelnut allergy. Test also for sensitization to soy in combination with a test for birch.	**f13 Peanut 2.7** f422 Ara h 1 <0.1 f423 Ara h 2 <0.1 f424 Ara h 3 < 0.1 **f352 Ara h 8 2.1** f427 Ara h 9 < 0.1 f17 Hazelnut 166 f428 Cor a 1 80.6 f425 Cor a 8 < 0.1 f14 Soy 0.42 **f353 Gly m 4 38.5** **t3 Birch 206**

Interpretation

- Indication of birch pollen induced hazelnut allergy as increased level of specific IgE to Cor a 1. Pollen-driven food allergy is in most cases associated with mild oral allergy syndrome (OAS). Special caution in this case: The very high IgE result of f17 Hazelnut indicates that other proteins might be involved in the sensitisation of this patient, risk for severe reactions should not be neglected
- **Indication of birch pollen induced peanut allergy as increased levels of specific IgE to Ara h 8. Pollen-driven food allergy is in most cases associated with milder forms of OAS.**
- Increased levels of specific IgE for Gly m 4 indicates a risk of severe reactions caused by soy-intake, particularly in high amounts and in combination with exercise during pollen seasons.

Clinical presentation	Reason for requesting ImmunoCAP Allergen Components	Results of ImmunoCAP Allergens (kU/l)
• **16 year-old girl** on follow-up visit after a reaction caused by inhaled peanut. Swelling of the throat after inhaled peanut in an aeroplane. • **Eczema in early childhood**, allergic to peanut since early childhood (local reaction in the mouth) and to furred animals since the age of 7 (rhinoconjunctivitis). • **Family history.** Younger brother has a history of allergy to egg and milk, now tree-pollen allergic, as is the father. • **ImmunoCAP Specific IgE results:** Peanut 1.0 kU/l	Decided to perform a risk assessment of the peanut allergy before deciding on a provocation test.	**f13 Peanut 1.6** f422 Ara h 1 <0.1 **f423 Ara h 2 1.4** f424 Ara h 3 < 0.1 f352 Ara h 8 < 0.1 f427 Ara h 9 < 0.1

Interpretation

- **The sensitisation to the peanut allergens is induced by the Ara h 2 protein, a storage protein often associated with severe reactions. Even though the peanut specific IgE level is low in this case there is an increased risk of severe reactions.**

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