



APPLE

Molecular Allergology



Improved diagnostics in apple allergy

– distinguish between pollen-related and LTP-dependent fruit allergy

Take the diagnosis and management of apple-allergic patients to a whole new level

Distinguish between pollen related apple allergy and fruit allergy due to LTP sensitization

The cause of apple allergy shows regional differences; it may be due to LTP sensitization or to grass-pollen cross reactivity in Southern Europe while in Northern and central Europe birch pollen related apple allergy is more common.^{1,2}

- Sensitization to Mal d 3 (an LTP protein) indicates a fruit allergy where peach is often the primary sensitizer.^{3,4}
- The presence of IgE antibodies to profilin (e.g. Phl p 12) alone is indicative of a grass-pollen related apple allergy.^{5,6}
- Sensitization to Mal d 1 (a PR-10 protein) is seen in birch-pollen allergic patients and is caused by cross-reactivity with the main birch allergen Bet v 1.^{4,7}

Improve the risk assessment using allergen components

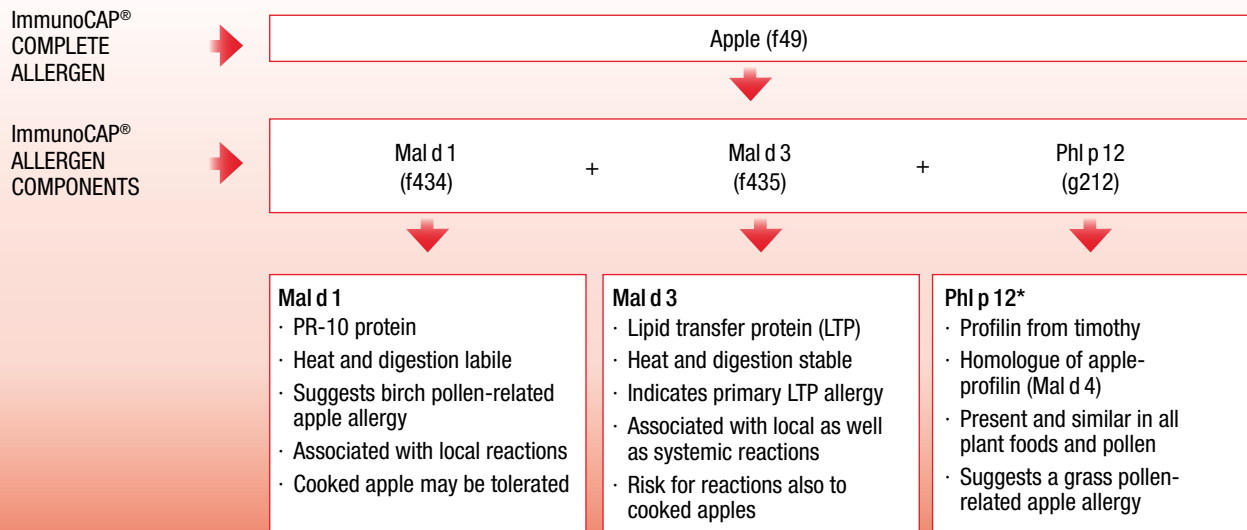
- Patients with IgE antibodies to Mal d 3 are at higher risk of developing systemic reactions.³
- Fruit allergic patients without concomitant pollinosis are at higher risk of systemic reactions.^{8,9}
- IgE antibodies to Mal d 1 and/or profilin and not to Mal d 3 suggest that predominantly local oral symptoms may occur.^{2,3}

Improve management of apple allergic patients

- Apple allergic patients sensitized to Mal d 3 may tolerate peeled apples.¹⁰
- In patients sensitized to Mal d 3, other fruits and nuts should be considered as potential causes of allergic reactions (peach, apricot, cherry, hazelnut, walnut etc).⁴
- Apple allergic patients sensitized to Mal d 1 and/or profilin may often tolerate cooked apples.¹



Recommended test profile



*Profilins

Profilins are so similar across species, that any profilin may be used as a surrogate marker. If preferred profilin from birch (Bet v 2) or peach (Pru p 4) can be used instead.

Did you know that?

Regional differences:

- The prevalence of pollen related apple allergy in Northern and Central Europe is approximately 2%. Up to 80% of birch allergic patients have concomitant plant food allergies, where apple and hazelnut allergies are the most common.¹¹
- Fruit allergy driven by LTP-sensitization, common in Southern Europe, may lead to cross-reactivity with other fruits and nuts.¹²
- Fruit allergy in Southern and Central Europe may also be a consequence of grass pollen cross-reactivity caused by profilin sensitization.^{5,6}

Symptoms and disease progression

- Allergic reactions in patients with sensitization to LTP range from oral allergy syndrome to severe anaphylaxis. Over time, the patient may react more severely to the same food.^{8,9}
- In pollen dependent food allergy the patient has initially suffered from pollinosis and later developed symptoms from eating plant derived foods such as apple.^{3,6}

Apple and its allergens

- LTP is localized predominantly in the fruit peel, but peeled fruit may also elicit reactions.¹³
- PR-10 proteins are found mainly in the fruit pulp. These proteins are sensitive to heat and digestion, hence symptoms are commonly restricted to oral itching and most patients tolerate cooked apple.¹¹
- Different apple cultivars contain varying amounts of allergens.¹³



Make a precise assessment

ImmunoCAP Allergen Components help you differentiate between "true" allergies and cross-reactivity

Make a substantiated decision

A better differentiation helps you give relevant advice and define the optimal treatment

Make a difference

More informed management helps you improve the patient's well-being and quality of life

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