FOODTEST.HU

PROFESSIONAL MATERIAL

Cross-reactions in food intolerance

Why can the test show a reaction to a food the patient has never eaten?

This summary draws attention to cross-reactions, which can produce results that seem contradictory at first sight.

Occasionally a reaction to a food is detected even though the patient insists they have never eaten that food. If no 'hidden' source is found when the diet is checked, the anomaly may be explained by the phenomenon known as **cross-reaction**.

How does cross-reaction develop?

Cross-reaction occurs when an antibody recognises not only the food protein against which it was produced, but also another, very similar antigen. This is because some foods and pollens – although not directly related – share the same molecule or part of a molecule. The part of the molecule recognised by the antibody is called the **antigenic epitope**; the phenomenon has long been observed, and modern molecular diagnostics identifies more and more epitopes.

Homology above 70%

If the similarity between different antigens exceeds 70%, cross-reaction may develop – that is, if the patient has become sensitised to a molecule that is also found in something else. Cross-reactors can be foods and pollens, but also latex and insects.

The clinical presentation is influenced by

- the concentration of the allergen
- the maturity of the molecule (which also affects whether the epitope is exposed)
- the heat sensitivity of some antigens – they break down when heated
- geographical factors, biodiversity
- other factors: physical exertion, taking medication

The most common cross-reactions

The triggering source (pollen, insect, latex) and the foods with which cross-reaction may develop:

Mugwort

Artemisia vulgaris

aniseed · apple · artichoke · caraway · cardamom · carrot · celery · chamomile · cinnamon · coriander · cucumber · dill · garlic · ginger · grape · kiwi · lychee · mango · melon · nutmeg · oregano · parsley · pepper (white and black) · potato · sunflower seed · sweet pepper · tomato

Birch

Betula

almond · apple · apricot · carrot · cherry · fig · hazelnut · kiwi · lychee · nectarine · pear · plum

House dust mite, cockroach, other insects

tropomyosin

crab · freshwater crayfish · lobster · mussels (blue) · octopus · oyster · prawns · scallop · snails · squid, cuttlefish

Latex

avocado · banana · cassava · fig · kiwi · mango · melon · papaya · peach · potato · spinach · sweet chestnut · tomato

Pollens

banana · melon · nuts · orange · pineapple · tomato · watermelon

Grass pollens

banana · melon · nuts · orange · pineapple · tomato · watermelon

Other

caviar · egg

Example: house dust mite and oyster

Many people develop a classic (type I) allergic reaction to **tropomyosin**, the main allergen of the house dust mite. Allergists desensitise many patients to help them overcome the allergy; in others, the allergy can be managed without medication.

These patients also produce IgG-type (more precisely IgG4) antibodies, high concentrations of which are also detected by FOODTEST 200+. Normally, the antibodies measured by the test belong to the IgG1 and IgG2 subclasses, and in extreme cases to IgG3.

Tropomyosin, however, is found not only in house dust mites but also in other invertebrates, in varying concentrations. Commonly eaten invertebrates include edible mussels, oysters, crabs, prawns and lobsters. A patient sensitive to house dust mite may therefore also react to oyster – which is why **oyster positivity** may appear in the FOODTEST 200+ test even if the patient has never eaten oyster.

Source: Cambridge Nutritional Sciences Ltd., March 2016

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