

ALEX²® Case Study No. 9

Henrik, 13 years, from Helsinki, Finland



Clinical history

Henrik suffers from recurrent allergic rhino-conjunctivitis (RCA) and is treated symptomatically. His doctor performed a skin test and a sensitisation to cat was detected. He was able to reduce his contact with cats, which also improved his symptoms.

Family history

No known allergies.

Present situation (2021)

Henrik gets recurrent stomach pain and diarrhoea after eating ham and salami. His doctor orders an ALEX²® allergy test.

ALEX²® Results

Allergen Source	Allergen	Biochemical destination	IgE Level (kUA/L)
	tIgE		18.76kU/L
Pig	Sus d 1	Serum Albumin	2.12
Dog	Can f 3	Serum Albumin	0.44
Cat	Fel d 1	Uteroglobin	9.45
	Fel d 2	Serum Albumin	4.72

Interpretation

- Sensitisation to Fel d 1 was detected. Fel d 1 is a member of the uteroglobin (UG) allergen family and a marker for true cat allergy. Fel d 1 also serves as a marker for an AIT indication if corresponding symptoms are present.
- Sensitisation to the serum albumins Sus d 1, Can f 3 and Fel d 2 was found.

- Serum albumins have a very high degree of cross-reactivity and are not stable to heat and digestion. The degree of cross-reactivity between SA from different mammalian epithelia is very high. The only exception is Gal d 5 from chicken egg yolk.
- Sus d 1 is the main allergen from pork. It shows a high degree of cross-reactivity with other mammalian serum albumins (e.g., Fel d 2 from cat).
- Can f 3 (dog) and Fel d 2 (cat) are minor allergens from the corresponding allergen sources. The highest concentration is found in epithelia.
- Sensitisation to Fel d 2 can also lead to cat-pork syndrome. In patients sensitised to feline serum albumin Fel d 2, clinically relevant cross-reactions may occur when eating raw pork (ham, salami) or not fully cooked pork, but also when eating beef.

Summary

- Sensitisation to cat and dog has been identified.
- The patient is also sensitised to serum albumins, which are responsible for cross-reactions with albumins in meat and milk.
- An example for this kind of cross-reaction is the "cat-pork syndrome".
- Since serum albumins are thermolabile proteins, thoroughly cooked meat is usually well tolerated.
- The results of the ALEX²® allergy test showed that the patient was primarily sensitised to cat epithelia. Due to the strong cross-reactivity of serum albumins, sensitisation to dog and pork could also be detected.
- The patient should undergo comprehensive patient education on avoidance measures. Heat treatment (frying, boiling, etc.) or other procedures such as freeze-drying can reduce the allergenicity of pork in serum albumin associated pork allergy. The patient should continue to avoid contact with cats.