

## ALEX® Case Report No. 2

Lu, 28y, from Hong Kong

### Clinical History

Rhino-conjunctivitis was observed during childhood. Asthmatic exacerbations without physical exercise were also registered. An in-vitro test for house dust was positive in 1998.



### Family History

Both parents are allergic to mites.

### Present situation (2019)

Lu suffered severe allergic symptoms (skin rash, swellings & itching) after the intake of a Thai dish, which contained seafood and as well as peanuts and soy. Because of the complex nature of the consumed dish and the potentially dangerous reactions an ALEX test was requested by Lu' allergist.

### ALEX Results\*

Allergen Source	Allergen	Biochemical Designation	IgE Level [kU <sub>A</sub> /L]
<b>D. farinae</b>	Der f 2	NPC2	2.45
<b>D. pteronyssinus</b>	Der p 2	NPC2	3.10
	Der p 10	Tropomyosin	5.87
<b>Blomia tropicalis</b>	Blo t	Extract	1.02
<b>American Cockroach</b>	Per a 7	Tropomyosin	3.83
<b>Anisakis simplex</b>	Ani s 3	Tropomyosin	1.82
<b>Common mussel</b>	Myt e	Extract	1.03
<b>Crab mix</b>	Chi spp.	Extract	0.95
<b>Lobster</b>	Hom g	Extract	0.58
<b>Shrimp</b>	Pen m 1	Tropomyosin	4.01
<b>Shrimp mix</b>	Lit s	Extract	0.98
<b>Peanut</b>	Ara h 1	7S Globulin	2.79
	Ara h 3	11S Globulin	3.58

\* For convenience extract results are not shown, if a corresponding component was positive.

### Interpretation

- The house dust mite sensitization was confirmed, as the major allergens Der f 2 & Der p 2 showed positive results. Encasing and allergen specific immunotherapy (AIT) is advised – especially to reduce the risk for developing allergic asthma.
- Der p 10 is a member of the Tropomyosin allergen family. Tropomyosins are highly cross-reactive and heat-stable. They are present in mites, shellfish and molluscs.
- Blomia tropicalis is a storage mite, that is present in tropical and sub-tropical areas. The positivity here could have been caused by cross-reactivity to the house dust mite d. pteronyssinus via Tropomyosin.

- American Cockroach is a common pest in tropical and sub-tropical areas (high temperature, high humidity). To reduce the allergen load, pest-control is advised.
- Common mussel, Crab mix, Lobster and Shrimps are positive due to cross-reaction with Der p 10 – Tropomyosin. As Tropomyosin is heat stable, cooking or roasting will not eliminate its allergenicity. Avoidance and prescription of an emergency set is advised.
- Ara h 1 and 3 are risk markers from peanut, both can induce severe reactions. Avoidance of peanut containing foods and prescription of an emergency set is advised. Both allergens are stable to heat processing (e.g. roasting).

## Summary

- Lu's mite allergy has led via her Tropomyosin sensitization (Der p 10) to clinically relevant cross-reactions to seafood. Mite encasing, AIT against house dust mite and avoidance of seafood is advised.
- Aside from the Tropomyosin syndrome, Lu has a risk of severe reactions when consuming peanuts, as sensitizations to two storage proteins (Ara h 1+3) were detected. Avoidance is advised.
- An emergency set could be prescribed, as both seafood and peanut can cause severe allergic reactions.