Patient ID:

Patient Name:
Test
Date of Birth:

Sample Code:
Test
QR-Code:
02AZR156
Analyzed on:
30/08/2023
Tested Allergens:
295
Test method:
ALEX^2

Referring Physician:

Additional Information:

The internal QC (Plausibility check for GD) was within acceptance range.

Lab report: Summary on detectable sensitisations

POLLEN

Grass Pollen

Tree Pollen

Weed Pollen

MITES

House Dust Mites & Storage Mites

PLANT-BASED FOOD

Legumes

Grains

Spices

Fruits

Vegetables

Nuts & Seeds

INSECTS & VENOMS

Ant, Bee, Wasp

Cockroach

MICROORGANISMS

Fungal Spores & Yeast

ANIMAL-DERIVED FOOD

Milk

Egg

Fish & Seafood

Meat

EPITHELIAL TISSUES OF ANIMALS

Pets

Farm Animals

OTHERS

Latex

Ficus

CCD

Parasite

Highest measured IgE concentration per allergen group

< 0.3 kUA/L	0.3 - 1 kUA/L	1 - 5 kUA/L	5 - 15 kUA/L	> 15 kUA/L
Negative or uncertain	Low IgE level	Moderate IgE level	High IgE level	Very high IgE level

Name	E/M	Allergen	Function	kU$_A$/L
POLLEN				
Grass Pollen				
Bermuda grass	⁘	Cyn d		0.12
	⊙	Cyn d 1	Beta-Expansin	0.22
Perennial Ryegrass	⊙	Lol p 1	Beta-Expansin	< 0.10
Bahia grass	⁘	Pas n		< 0.10
Timothy grass	⊙	Phl p 1	Beta-Expansin	< 0.10
	⊙	Phl p 2	Expansin	< 0.10
	⊙	Phl p 5.0101	Grass Group 5/6	< 0.10
	⊙	Phl p 6	Grass Group 5/6	< 0.10
	⊙	Phl p 7	Polcalcin	< 0.10
	⊙	Phl p 12	Profilin	< 0.10
Common reed	⁘	Phr c		< 0.10
Cultivated rye, Pollen	⁘	Sec c_pollen		< 0.10
Tree Pollen				
Acacia	⁘	Aca m		< 0.10
Tree of Heaven	⁘	Ail a		< 0.10
Alder	⊙	Aln g 1	PR-10	< 0.10
	⊙	Aln g 4	Polcalcin	< 0.10
Silver birch	⊙	Bet v 1	PR-10	< 0.10
	⊙	Bet v 2	Profilin	< 0.10
	⊙	Bet v 6	Isoflavon Reductase	< 0.10
Paper mulberry	⁘	Bro pa		< 0.10
Hazel pollen	⁘	Cor a_pollen		< 0.10
	⊙	Cor a 1.0103	PR-10	< 0.10
Sugi	⊙	Cry j 1	Pectate Lyase	< 0.10
Cypress	⊙	Cup a 1	Pectate Lyase	< 0.10
	⁘	Cup s		0.13
Beech	⊙	Fag s 1	PR-10	< 0.10
Ash	⁘	Fra e		< 0.10
	⊙	Fra e 1	Ole e 1-Family	< 0.10
Walnut pollen		Jug r_pollen		< 0.10
Mountain cedar	⁘	Jun a		< 0.10
Mulberry	⁘	Mor r		< 0.10
Olive	⊙	Ole e 1	Ole e 1-Family	< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
	⊙	Ole e 9	1,3 β Glucanase	< 0.10
Date palm	⊙	Pho d 2	Profilin	< 0.10
London plane tree	⊙	Pla a 1	Plant Invertase	< 0.10
	⊙	Pla a 2	Polygalacturonase	< 0.10
	⊙	Pla a 3	nsLTP	< 0.10
Cottonwood	⁘	Pop n		< 0.10
Elm	⁘	Ulm c		< 0.10

Weed Pollen

Common Pigweed	⁘	Ama r		< 0.10
Ragweed	⁘	Amb a		< 0.10
	⊙	Amb a 1	Pectate Lyase	< 0.10
	⊙	Amb a 4	Plant Defensin	< 0.10
Mugwort	⁘	Art v		< 0.10
	⊙	Art v 1	Plant Defensin	< 0.10
	⊙	Art v 3	nsLTP	< 0.10
Hemp	⁘	Can s		< 0.10
	⊙	Can s 3	nsLTP	< 0.10
Lamb's quarter	⁘	Che a		< 0.10
	⊙	Che a 1	Ole e 1-Family	< 0.10
Annual mercury	⊙	Mer a 1	Profilin	< 0.10
Wall pellitory	⁘	Par j		< 0.10
	⊙	Par j 2	nsLTP	0.40
Ribwort	⁘	Pla l		< 0.10
	⊙	Pla l 1	Ole e 1-Family	< 0.10
Russian thistle	⁘	Sal k		< 0.10
	⊙	Sal k 1	Pectin Methylesterase	< 0.10
Nettle	⁘	Urt d		< 0.10

MITES

House Dust Mite

American house dust mite	⊙	Der f 1	Cysteine protease	30.10
	⊙	Der f 2	NPC2 Family	18.00
European house dust mite	⊙	Der p 1	Cysteine protease	33.81
	⊙	Der p 2	NPC2 Family	15.78
		Der p 5	unknown	< 0.10
	⊙			

Name	E/M	Allergen	Function	kU$_A$/L
	⊙	Der p 7	Mites, Group 7	33.90
	⊙	Der p 10	Tropomyosin	25.85
	⊙	Der p 11	Myosin, heavy chain	< 0.10
	⊙	Der p 20	Arginine kinase	< 0.10
	⊙	Der p 21	unknown	< 0.10
	⊙	Der p 23	Peritrophin-like protein domain	42.59
Storage Mite				
Acarus siro	⁘	Aca s		0.49
Blomia tropicalis	⊙	Blo t 5	Mites, Group 5	0.45
	⊙	Blo t 10	Tropomyosin	21.19
	⊙	Blo t 21	unknown	< 0.10
Glycyphagus domesticus	⊙	Gly d 2	NPC2 Family	0.15
Lepidoglyphus destructor	⊙	Lep d 2	NPC2 Family	1.20
Tyrophagus putrescentiae	⁘	Tyr p		< 0.10
	⊙	Tyr p 2	NPC2 Family	< 0.10
MICROORGANISMS & SPORES				
Yeast				
Malassezia sympodialis	⊙	Mala s 5	unknown	< 0.10
	⊙	Mala s 6	Cyclophilin	< 0.10
	⊙	Mala s 11	Mn Superoxid-Dismutase	< 0.10
Yeast	⁘	Sac c		< 0.10
Moulds				
Alternaria alternata	⊙	Alt a 1	Alt a 1-Family	0.38
	⊙	Alt a 6	Enolase	< 0.10
Aspergillus fumigatus	⊙	Asp f 1	Mitogillin Family	< 0.10
	⊙	Asp f 3	Peroxysomal Protein	< 0.10
	⊙	Asp f 4	unknown	< 0.10
	⊙	Asp f 6	Mn Superoxid-Dismutase	< 0.10
Cladosporium herbarum	⁘	Cla h		< 0.10
	⊙	Cla h 8	Short Chain Dehydrogenase	< 0.10
Penicilium chrysogenum	⁘	Pen ch		< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
PLANT FOOD				
Legumes				
Peanut	◉	Ara h 1	7/8S Globulin	< 0.10
	◉	Ara h 2	2S Albumin	< 0.10
	◉	Ara h 3	11S Globulin	< 0.10
	◉	Ara h 6	2S Albumin	< 0.10
	◉	Ara h 8	PR-10	< 0.10
	◉	Ara h 9	nsLTP	< 0.10
	◉	Ara h 15	Oleosin	< 0.10
Chickpea	⁘	Cic a		< 0.10
Soy	◉	Gly m 4	PR-10	< 0.10
	◉	Gly m 5	7/8S Globulin	< 0.10
	◉	Gly m 6	11S Globulin	< 0.10
	◉	Gly m 8	2S Albumin	< 0.10
Lentil	⁘	Len c		< 0.10
White bean	⁘	Pha v		< 0.10
Pea	⁘	Pis s		< 0.10
Grains				
Oat	⁘	Ave s		< 0.10
Quinoa	⁘	Che q		< 0.10
Common buckwheat	⁘	Fag e		< 0.10
	◉	Fag e 2	2S Albumin	< 0.10
Barley	⁘	Hor v		< 0.10
Lupine seed	⁘	Lup a		< 0.10
Rice	⁘	Ory s		< 0.10
Millet	⁘	Pan m		< 0.10
Cultivated rye	⁘	Sec c_flour		< 0.10
Wheat	◉	Tri a aA_TI	Alpha-Amylase Trypsin-Inhibitor	< 0.10
	◉	Tri a 14	nsLTP	< 0.10
	◉	Tri a 19	Omega-5-Gliadin	< 0.10
Spelt	⁘	Tri s		< 0.10
Maize	⁘	Zea m		< 0.10
	◉	Zea m 14	nsLTP	< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
Spices				
Paprika	⁘	Cap a		< 0.10
Caraway	⁘	Car c		< 0.10
Oregano	⁘	Ori v		< 0.10
Parsley	⁘	Pet c		< 0.10
Anise	⁘	Pim a		< 0.10
Mustard	⁘	Sin		< 0.10
	⊙	Sin a 1	2S Albumin	< 0.10
Fruits				
Kiwi	⊙	Act d 1	Cysteine protease	< 0.10
	⊙	Act d 2	TLP	< 0.10
	⊙	Act d 5	Kiwellin	< 0.10
	⊙	Act d 10	nsLTP	< 0.10
Papaya	⁘	Car p		< 0.10
Orange	⁘	Cit s		< 0.10
Melon	⊙	Cuc m 2	Profilin	< 0.10
Fig	⁘	Fic c		< 0.10
Strawberry	⊙	Fra a 1+3	PR-10+LTP	< 0.10
Apple	⊙	Mal d 1	PR-10	< 0.10
	⊙	Mal d 2	TLP	< 0.10
	⊙	Mal d 3	nsLTP	< 0.10
Mango	⁘	Man i		< 0.10
Banana	⁘	Mus a		< 0.10
Avocado	⁘	Pers a		< 0.10
Cherry	⁘	Pru av		< 0.10
Peach	⊙	Pru p 3	nsLTP	< 0.10
Pear	⁘	Pyr c		< 0.10
Blueberry	⁘	Vac m		< 0.10
Grapes	⊙	Vit v 1	nsLTP	< 0.10
Vegetables				
Onion	⁘	All c		< 0.10
Garlic	⁘	All s		< 0.10
Celery	⊙	Api g 1	PR-10	< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
	⊙	Api g 2	nsLTP	< 0.10
	⊙	Api g 6	nsLTP	< 0.10
Carrot	⁘	Dau c		< 0.10
	⊙	Dau c 1	PR-10	< 0.10
Potato	⁘	Sol t		0.42
Tomato	⁘	Sola l		< 0.10
	⊙	Sola l 6	nsLTP	< 0.10

Nuts

Cashew	⁘	Ana o		< 0.10
	⊙	Ana o 2	11S Globulin	< 0.10
	⊙	Ana o 3	2S Albumin	< 0.10
Brazil nut	⁘	Ber e		< 0.10
	⊙	Ber e 1	2S Albumin	< 0.10
Pecan	⁘	Car i		0.15
Hazelnut	⊙	Cor a 1.0401	PR-10	< 0.10
	⊙	Cor a 8	nsLTP	< 0.10
	⊙	Cor a 9	11S Globulin	0.18
	⊙	Cor a 11	7/8S Globulin	< 0.10
	⊙	Cor a 14	2S Albumin	< 0.10
Walnut	⊙	Jug r 1	2S Albumin	< 0.10
	⊙	Jug r 2	7/8S Globulin	< 0.10
	⊙	Jug r 3	nsLTP	< 0.10
	⊙	Jug r 4	11S Globulin	0.45
	⊙	Jug r 6	7/8S Globulin	< 0.10
Macadamia	⊙	Mac i 2S Albumin	2S Albumin	< 0.10
	⁘	Mac inte		< 0.10
Pistachio	⊙	Pis v 1	2S Albumin	< 0.10
	⊙	Pis v 2	11S Globulin subunit	< 0.10
	⊙	Pis v 3	7/8S Globulin	< 0.10
Almond	⁘	Pru du		< 0.10

Seeds

Pumpkin seed	⁘	Cuc p		< 0.10
Sunflower seed	⁘	Hel a		< 0.10
Poppy seed	⁘	Pap s		< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
	⊙	Pap s 2S Albumin	2S Albumin	< 0.10
Sesame	⁘	Ses i		0.13
	⊙	Ses i 1	2S Albumin	0.87
Fenugreek seeds	⁘	Tri fo		< 0.10

ANIMAL FOOD

Milk

Cow, milk	⁘	Bos d_milk		25.83
	⊙	Bos d 4	α-Lactalbumin	16.58
	⊙	Bos d 5	β-Lactoglobulin	8.23
	⊙	Bos d 8	Casein	14.59
Camel	⁘	Cam d		0.29
Goat, milk	⁘	Cap h_milk		6.45
Mare's milk	⁘	Equ c_milk		0.19
Sheep, milk	⁘	Ovi a_milk		1.52

Egg

Egg white	⁘	Gal d_white		19.61
Egg yolk	⁘	Gal d_yolk		1.11
Egg white	⊙	Gal d 1	Ovomucoid	10.54
	⊙	Gal d 2	Ovalbumin	16.23
	⊙	Gal d 3	Ovotransferrin	2.85
	⊙	Gal d 4	Lysozym C	0.25
Egg yolk	⊙	Gal d 5	Serum Albumin	< 0.10

Seafood

Herring worm	⊙	Ani s 1	Kunitz Serin Protease Inhibitor	< 0.10
	⊙	Ani s 3	Tropomyosin	11.17
Crab	⁘	Chi spp.		5.73
Herring	⁘	Clu h		< 0.10
	⊙	Clu h 1	β-Parvalbumin	< 0.10
Brown shrimp	⊙	Cra c 6	Troponin C	< 0.10
Carp	⊙	Cyp c 1	β-Parvalbumin	< 0.10
Atlantic cod	⁘	Gad m		1.81
	⊙	Gad m 2+3	β-Enolase & Aldolase	< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
	⊙	Gad m 1	β-Parvalbumin	< 0.10
Lobster	⁘	Hom g		2.73
Shrimp	⁘	Lit s		9.64
Squid	⁘	Lol spp.		1.15
Common mussel	⁘	Myt e		< 0.10
Oyster	⁘	Ost e		< 0.10
Shrimp	⁘	Pan b		1.85
Scallop	⁘	Pec spp.		< 0.10
Black Tiger Shrimp	⊙	Pen m 1	Tropomyosin	4.76
	⊙	Pen m 2	Arginine kinase	< 0.10
	⊙	Pen m 3	Myosin, light chain	< 0.10
	⊙	Pen m 4	Sarcoplasmic Calcium Binding Protein	< 0.10
Thornback ray	⁘	Raj c		< 0.10
	⊙	Raj c Parvalbumin	α-Parvalbumin	< 0.10
Clam	⁘	Rud spp.		2.41
Salmon	⁘	Sal s		< 0.10
	⊙	Sal s 1	β-Parvalbumin	< 0.10
Atlantic mackerel	⁘	Sco s		< 0.10
	⊙	Sco s 1	β-Parvalbumin	< 0.10
Tuna	⁘	Thu a		< 0.10
	⊙	Thu a 1	β-Parvalbumin	< 0.10
Swordfish	⊙	Xip g 1	β-Parvalbumin	< 0.10

Meat

House cricket	⁘	Ach d		3.81
Cattle, meat	⁘	Bos d_meat		0.10
	⊙	Bos d 6	Serum Albumin	1.19
Horse, meat	⁘	Equ c_meat		< 0.10
Chicken meat	⁘	Gal d_meat		< 0.10
Migratory locust	⁘	Loc m		3.29
Turkey	⁘	Mel g		< 0.10
Rabbit, meat	⁘	Ory_meat		< 0.10
Sheep, meat	⁘	Ovi a_meat		< 0.10
Pork	⁘	Sus d_meat		< 0.10
	⊙	Sus d 1	Serum Albumin	< 0.10
Mealworm	⁘	Ten m		9.29

Name	E/M	Allergen	Function	kU$_A$/L

INSECTS & VENOMS

Fire ant poison

Fire ant	E	Sol spp.		0.13

Honey Bee Venom

Honey bee	E	Api m		10.57
	M	Api m 1	Phospholipase A2	0.26
	M	Api m 10	Icarapin Variant 2	20.72

Wasp Venom

Hornet	E	Dol spp		< 0.10
Paper wasp venom	E	Pol d		< 0.10
	M	Pol d 5	Antigen 5	< 0.10
Wasp venom	E	Ves v		< 0.10
	M	Ves v 1	Phospholipase A1	< 0.10
	M	Ves v 5	Antigen 5	< 0.10

Cockroach

German Cockroach	M	Bla g 1	Cockroach Group 1	0.42
	M	Bla g 2	Aspartyl protease	< 0.10
	M	Bla g 4	Lipocalin	< 0.10
	M	Bla g 5	Glutathione S-transferase	< 0.10
	M	Bla g 9	Arginine kinase	< 0.10
American Cockroach	E	Per a		< 0.10
	M	Per a 7	Tropomyosin	2.70

ANIMAL ORIGIN

Pet

Dog	M	Can f_Fd1	Uteroglobin	< 0.10
Male dog urine (incl. Can f 5)	E	Can f_male urine		< 0.10
Dog	M	Can f 1	Lipocalin	45.43
	M	Can f 2	Lipocalin	26.76
	M	Can f 3	Serum Albumin	< 0.10

Name	E/M	Allergen	Function	kU$_A$/L
	⊙	Can f 4	Lipocalin	21.59
	⊙	Can f 6	Lipocalin	43.17
Guinea pig	⊙	Cav p 1	Lipocalin	1.96
Cat	⊙	Fel d 1	Uteroglobin	37.27
	⊙	Fel d 2	Serum Albumin	< 0.10
	⊙	Fel d 4	Lipocalin	45.07
	⊙	Fel d 7	Lipocalin	42.88
House mouse	⊙	Mus m 1	Lipocalin	1.95
Rabbit, epithel	⊙	Ory c 1	Lipocalin	< 0.10
	⊙	Ory c 2	Lipophilin	< 0.10
	⊙	Ory c 3	Uteroglobin	5.12
Djungarian hamster	⊙	Phod s 1	Lipocalin	< 0.10
Rat	⁘	Rat n		< 0.10

Farm Animals

Cattle	⊙	Bos d 2	Lipocalin	< 0.10
Goat, epithel	⁘	Cap h_epithelia		0.11
Horse, epithel	⊙	Equ c 1	Lipocalin	34.97
	⊙	Equ c 3	Serum Albumin	< 0.10
	⊙	Equ c 4	Latherin	2.14
Sheep, epithel	⁘	Ovi a_epithelia		< 0.10
Pig	⁘	Sus d_epithelia		< 0.10

OTHERS

Latex

Latex	⊙	Hev b 1	Rubber elongation factor	< 0.10
	⊙	Hev b 3	Small rubber particle protein	< 0.10
	⊙	Hev b 5	unknown	< 0.10
	⊙	Hev b 6.02	Hevein	< 0.10
	⊙	Hev b 8	Profilin	< 0.10
	⊙	Hev b 11	Class 1 Chitinase	< 0.10

Ficus

Weeping fig	⁘	Fic b		< 0.10

Name	E/M	Allergen	Function	kU_A/L
CCD				
Hom s Lactoferrin	⊙	Hom s LF	CCD	< 0.10
Parasite				
Pigeon tick	⊙	Arg r 1	Lipocalin	< 0.10

Total IgE result: > 2500 kU/L

Reference range total-IgE
Adults: < 100 kU/L

SAMPLED ON
28/08/2023

PRINTED ON
04/11/2024

ASSAY PERFORMED ON
28/08/2023

Information to cross-reactive allergens

nsLTPs

nsLTPs show a high degree of cross-reactivity within plant family borders (e.g. stone-fruit, Rosaceae).

nsLTPs are the most prevalent plant-food allergens in Southern Europe. The clinical reactions can be systemic and severe, especially when not associated to birch pollinosis. Pru p 3, the major allergen of peach, plays a precursor role in the sensitization to other nsLTPs. Relevant nsLTPs containing plant-foods belong not only to Rosaceae family (incl. stone- and pomaceous fruit), but also to the nuts and legumes group, as well as to cereals such as wheat, maize and rice. nsLTPs are stable to processing.

Storage proteins (2S Albumins, 7/8S Globulins, 11S Globulins)

Storage proteins show a limited degree of cross-reactivity.

Storage proteins are major allergens in legumes (e.g. peanut or soy), tree nuts (e.g. wal- or hazelnut) and other seeds (e.g. buckwheat, sesame, mustard). Storage proteins are the major cause of severe allergic reactions, including anaphylaxis. Storage proteins are stable to processing.

Lipocalins

Lipocalins show a limited degree of cross-reactivity.

Lipocalins are airborne and easily spread in indoor environments. They are a risk factor for respiratory symptoms and asthma. The impact of individual lipocalin allergens on severity of symptoms is unknown.

Serum Albumins

Serum albumins show a very high degree of cross-reactivity.

Serum albumins represent a minor respiratory allergen of animal dander. Serum albumins are also implicated in rare allergic diseases like pork-cat and bird-egg syndrome. Meat and milk allergen: May elicit severe symptoms upon ingestion of uncooked or unboiled food, not stable to processing.

Tropomyosins

Tropomyosins show a very high degree of cross-reactivity.

Tropomyosins can induce diverse symptoms including anaphylaxis. Sensitisation to tropomyosins can occur by ingestion (seafood), inhalation (mites, cockroaches) or parasite infection (ascariasis, anisakiasis). Tropomyosins are stable to processing.

NPC2

NPC2 allergens show a limited degree of cross-reactivity.

Members of the NPC2 family are present in house dust- and storage mites. The cross-reactivity between Der f 2 and Der p 2 is quite extensive. NPC2 allergens from storage mites show only a limited degree of cross-reactivity to their pendants in house dust mites.

Uteroglobin

Uteroglobins show a limited degree of cross-reactivity.

Uteroglobins are generated in salivary glands and in the skin of some furry animals. Higher levels of sIgE against Uteroglobins were observed in children with asthma to cat.

ALEX² - Number of tested allergen sources: 165

GRASS POLLEN 6
Bahia grass, Bermuda grass, Common reed, Perennial ryegrass, Rye, Timothy grass

TREE POLLEN 19
Acacia, Alder, Arizona Cypress, European Ash, Beech, Cottonwood, Date palm, Elm, Hazel, London Plane Tree, Mediterranean Cypress, Mountain cedar, Mulberry, Olive, Paper mulberry, Silver birch, Sugi, Tree of Heaven, Walnut

WEED POLLEN 10
Annual mercury, Hemp, Lamb's quarter, Mugwort, Nettle, Pigweed, Ragweed, Ribwort, Russian thistle, Wall pellitory

HOUSE DUST MITES & STORAGE MITES 7
Acarus siro, American house dust mite, Blomia tropicalis, European house dust mite, Glycyphagus domesticus, Lepidoglyphus destructor, Tyrophagus putrescentiae

LEGUMES 6
Chickpea, White bean, Lentil, Pea, Peanut, Soy

GRAINS 11
Barley, Buckwheat, Corn, Cultivated rye, Lupine, Millet, Oat, Quinoa, Rice, Spelt, Wheat

SPICES 6
Anise, Caraway, Mustard, Oregano, Paprika, Parsley

FRUITS 15
Avocado, Apple, Banana, Blueberry, Cherry, Fig, Grape, Kiwi, Mango, Muskmelon, Orange, Papaya, Peach, Pear, Strawberry

VEGETABLES 6
Carrot, Celery, Garlic, Onion, Potato, Tomato

NUTS & SEEDS 13
Almond, Brazil nut, Cashew, Hazelnut, Macadamia, Pecan, Pistachio, Walnut, Fenugreek seeds, Poppy seed, Pumpkin seed, Sesame, Sunflower seed

COCKROACH 2
American cockroach, German cockroach

INSECT VENOMS 5
Common wasp venom, Fire ant venom, Honeybee venom, Long-headed wasp venom, Paper wasp venom

FUNGAL SPORES & YEAST 6
Alternaria alternata, Aspergillus fumigatus, Baker's yeast, Cladosporium herbarum, Malassezia sympodialis, Penicilium chrysogenum

MILK 5
Camel's milk, Cow's milk, Goat's milk, Mare's milk, Sheep's milk

EGG 2
Egg white, Egg yolk

FISH & SEAFOOD 20
Anisakis simplex, Atlantic cod, Atlantic herring, Atlantic mackerel, Black-Tiger shrimp, Brown shrimp, Carp, Common mussel, Crab, Lobster, Northern prawn, Oyster, Salmon, Scallop, Shrimp mix, Squid, Swordfish, Thornback ray, Tuna, Venus clam

MEAT 10
Beef, Chicken, Horse, House cricket, Lamb, Mealworm, Migratory locust, Pig, Rabbit, Turkey

PETS 7
Cat, Djungarian hamster, Dog, Guinea pig, Mouse, Rabbit, Rat

FARM ANIMALS 5
Cattle, Goat, Horse, Pig, Sheep

OTHERS 4
Latex, Hom s lactoferrin, Pigeon tick, Weeping fig

Raven Interpretation Summary

Sample Information

The sample was tested on ALEX² Barcode 02AZR156, interpretation date 04/11/2024.

Of the tested 295 allergens, 56 were/was above the cut off of 0.3 kU_A/L. A sensitisation can be an indicator of an IgE dependent allergy. For all positive ALEX² allergens, comments for interpretation guidance are listed below.

Total IgE: ≥2500 kU/L

The measured total IgE was ≥2500 kU/L. A high total IgE titre indicates that allergy is likely.

Cross-Reactive allergen sensitisation detected

Sensitisations against molecular allergens which are markers of (broad) cross-reactivity between different allergen sources were detected.

Detected cross-reactive allergen sensitisations:

- nsLTPs: Par j 2
- Cysteine Proteases: Der f 1, Der p 1
- Storage Proteins: Jug r 4, Ses i 1
- Tropomyosins: Ani s 3, Blo t 10, Der p 10, Pen m 1, Per a 7
- Lipocalins: Can f 1, Can f 2, Can f 4, Can f 6, Cav p 1, Equ c 1, Fel d 4, Fel d 7, Mus m 1

Non-specific Lipid Transfer Proteins (nsLTP)

Members of the nsLTP allergen family can cause inhalative symptoms (nsLTP in pollen), as well as mild to severe forms of food allergy. nsLTP allergens can be found in tree-and weed pollen, and in many plant foods as well as in latex. Inhalative symptoms manifest themselves as allergic rhinoconjunctivitis and/or allergic asthma. nsLTP food allergens can trigger both mild and severe reactions. nsLTPs are stable to heat and digestion.

Cysteine Proteases

Members of the CP allergen family can cause inhalative symptoms, as well as mild to severe forms of food allergy. CP allergens can be found in several fruits, mites and in ragweed pollen. Inhalative symptoms manifest as allergic rhinoconjunctivitis and/or allergic asthma. CP food allergens can cause severe reactions. Fruit CP allergens are resistant to heat and digestion.

Storage Proteins

Members of the storage protein allergen families are able to induce mild and strong allergic reactions and even anaphylactic shock. Allergens of these families can be found in legumes, nuts and seeds. Storage proteins are resistant to heat and digestion. Storage protein allergen families include 2S Albumins, 7/8S & 11S Globulins.

Tropomyosins

Members of the Tropomyosin allergen family can cause inhalative, as well as mild to severe reactions after consumption of seafood. Allergens of the TM allergen family have been identified in ,fish-parasites, insects (e.g. cockroach), mites and seafood. The degree of cross-reactivity between TM members is high.

Lipocalins

Nearly all members of the Lipocalin allergen family can cause inhalative symptoms like allergic rhinoconjunctivitis and allergic asthma. Lipocalin from pigeon tick is associated with idiopathic nocturnal anaphylaxis. The degree of cross-reactivity varies wildly between members of this family. Some members of the Lipocalin family serve as markers for AIT indication.

Weed Pollen

Wall pellitory

Sensitisation to pollen from pellitory was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma.

Par j 2 is a member of the nsLTP allergen family. The degree of cross-reactivity to most other members of this family can be considered low. Par j 2 is a highly specific marker for pellitory sensitisation.

Causal treatment is possible via AIT - Par j 2 serves as a marker for AIT indication, if corresponding clinical symptoms are present. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Furry Animals

Cat

Sensitisation to cat was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma.

Fel d 1 is a member of the Uteroglobin (UG) allergen family and a marker for genuine cat allergy. Fel d 1 is also serves as a marker for AIT indication, if corresponding clinical symptoms are present. The degree of cross-reactivity between Fel d 1 and other members of the UG allergen family is low to moderate (e.g. Can f Fel d 1 like from dog).

Fel d 4 is a member of the Lipocalin allergen family (LC). A moderate degree of crossreactivity to LC from dog (Can f 4) and horse (Equ c 1) have been described.

Fel d 7 is a member of of the Lipocalin allergen family (LC). A moderate degree of crossreactivity to LC from dog (Can f 1) has been described.

If avoidance of cats is not possible, an AIT can be prescribed. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Avoidance of exposition to cats is strongly recommended.

Dog

Sensitisation to dog was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma.

Can f 1 is a member of the Lipocalin allergen family (LC). There is a moderate risk of cross-reactivity with Fel d 7, a LC from cat. Can f 1 serves as a specific marker for dog sensitisation and as a marker for AIT, if corresponding clinical symptoms are present. The highest concentrations are found in fur and saliva.

Can f 2 is a member of the Lipocalin allergen family (LC). The degree of cross-reactivity with other LCs is low. Can f 2 serves as a marker for true dog sensitisation. The highest concentration of Can f 2 is found in saliva.

Can f 4 is a member of the Lipocalin allergen family (LC). The degree of cross-reactivity to other members of the LC family is very low. A low degree of cross-reactivity has been reported with a related allergen from cattle. Can f 4 is the most abundant allergen in dog fur.

Can f 6 is a member of the Lipocalin allergen family (LC). The degree of cross-reactivity to other LCs is low, except for a moderate risk to crossreact with Fel d 4 from cat and Equ c 1 from horse.

If avoidance of dogs is not possible an AIT can be prescribed. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Avoidance is strongly recommended.

Guinea pig

Sensitisation to guinea pig was detected. Allergic symptoms associated with this allergen source range from allergic rhino-conjunctivitis to allergic asthma, especially when exposure is frequent.

Cav p 1 is a member of the Lipocalin allergen family. The degree of cross-reactivity to other members of this family is low.

AIT for causal treatment may not be available. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Avoidance is strongly recommended.

Horse

Sensitisation to horse was detected. Allergic symptoms associated with this allergen source range from allergic rhino-conjunctivitis to allergic asthma.

Equ c 1 is a member of the Lipocalin allergen family (LC). There is a moderate risk of cross-reactivity to Fel d 4 (cat) and Can f 6 (dog). Equ c 1 is dispersed via saliva and dander.

Equ c 4 is a member of the Latherin allergen family. Significantly higher levels are found in stallions, compared to mares and geldings. So far only one other member of this allergen family has been described (from cat) - the degree of cross-reactivity can be considered low.

If avoidance of horses is not possible an AIT can be prescribed - Equ c 1 serves a marker for AIT indication, if corresponding clinical symproms are present. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Avoidance is strongly recommended.

Mouse

Sensitisation to mouse was detected. Allergic symptoms associated with this allergen source range from allergic rhino-conjunctivitis to allergic asthma, especially when exposure is frequent (e.g. in laboratory workers).

Mus m 1 is a member of the Lipocalin allergen family. The degree of cross-reactivity to other members of this family is low (Exception: Rat n 1 from rat).

AIT for causal treatment may not be available. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Avoidance is strongly recommended.

Rabbit

Sensitisation to rabbit was detected. Allergic symptoms associated with this allergen source range from allergic rhino-conjunctivitis to allergic asthma, especially when exposure is frequent (e.g. laboratory workers, rabbit breeders).

Ory c 3 is a member of the Uteroglobulin allergen family. The degree of cross-reactivity to its related allergens from other furry animals (e.g Fel d 1 from cat) is low.

AIT for causal treatment may not be available. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Avoidance is strongly recommended.

Moulds and Yeasts

Alternaria alternata

Sensitisation to spores from Alternaria alternata was detected. Allergic symptoms associated with A. alternata range from allergic rhinoconjunctivitis to allergic asthma. Alternaria alternata is an outdoor fungal species.

Alt a 1 is a member of the Alt a 1 allergen family and is associated with inhalative symptoms. Cross-reactions between Alt a 1 and other members of the Alt a 1 allergen family have been described. Alt a 1 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Causal treatment is possible via AIT, symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Mites and Cockroaches

House dust mites

Sensitisation to house dust mite was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to asthma.

Der p 1 & Der f 1 are members of the Cystein Protease allergen family (CP). The degree of cross-reactivity between different members of the CP family in different house dust mites is high. Both Der p 1 and Der f 1 serve as markers for AIT indication, if corresponding symptoms are present. Positive results were obtained for: Der f 1, Der p 1.

Der p 2 & Der f 2 are members of the NPC2 allergen family. The degree of cross-reactivity between different members of the NPC2 is very high in different house dust mites and less so to related allergens in storage mites. Both Der p 2 and Der 2 serve as markers for AIT indication. Positive results were obtained for: Der f 2, Der p 2.

Der p 7 is a member of the Mite Group 7 allergen family (MG 7). The degree of cross-reactivity to its pendant from D. farinae is very high, much lower to related allergens from storage mites

Der p 10 is a member of the Tropomyosin allergen family. The degree of cross-reactivity between Der p 10 and other Tropomyosins is high. Sensitisation to Der p 10 can be the cause for cross-reactions to shrimp and other seafood species (except fish).

Der p 23 is a member of the Peritrophin-like Protein allergen family (PLP), which is associated with the development of Asthma. The degree of cross-reactivity to other members of the PLP allergen family is not clear.

Allergen avoidance is advised. Encasings for blankets, matresses and pillows can reduce the allergen load. Der f 1/Der p 1 and Der f 2/Der p 2 are major allergens from house dust mite and serve as markers for AIT indication, if corresponding clinical symptoms are present. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray).

Storage Mites

Sensitisation to storage mites was detected. Allergic symptoms associated with this allergen source range from allergic rhino-conjunctivitis to allergic asthma.

Blo t 5 is a member of the Mite Group 5/21 allergen family (MG 5/21) and a marker for genuine Blomia tropicalis sensitisation. The degree of cross-reactivity to other members of the MG 5/21 allergen family is limited (e.g. to Der p 5). Blo t 5 may serve as a marker for AIT indication, if corresponding clinical symptoms are present.

Blo t 10 is a member of the Tropomyosin allergen family and it is highly cross-reactive to other members of this allergen family. Sensitisation to Blo t 10 can be the cause for cross-reactions to shrimp and other seafood species (except fish).

Lep d 2 is a member of the NPC2 allergen family. The degree of cross-reactivity between different members of the NPC2 family is moderate. Lep d 2 may serve as a marker for AIT indication, if corresponding clinical symptoms are present.

Allergen avoidance is advised. Encasings for blankets, matresses and pillows can reduce the allergen load. Blo t 5 and 21, Gly d 2, Lep d 2 and Tyr p 2 may serve as markers for AIT indication, if corresponding clinical symptoms are present. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray).

Cockroach

Sensitisation to cockroach was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma.

Per a 7 is a member of the Tropomyosin allergen family and it is highly cross-reactive to other members of this allergen family. Sensitisation to Per a 7 can be the cause for cross-reactions to shrimp and other seafood species (except fish).

Bla g 1 is a member of the Cockroach Group 1 allergen family (CG 1). Cross-reactions to other CG 1 family members have been described. High concentrations of Bla g 1 are found in fecal particles.

Pest control is advised as a first line measure. If this is not possible, an AIT can be prescribed. Symptomatic treatment includes anti-histamines as well as corticosteroids in various formulations (tablet, spray).

Insect Venoms

Honey bee

Sensitisation to honey bee venom was detected. Allergic symptoms associated with honey bee venom allergy range from local to severe anaphylactic reactions.

Api m 10 is a member of the Icarapin allergen familiy. The degree of cross-reactivity between Api m 10 and other members of the Icarapin allergen family is very high for closely related bee species (e.g. oriental honey bee). Api m 10 is underrepresented in some AIT solutions.

As avoidance of honey bees is difficult, AIT is the major therapy option. Additionally the prescription of an emergency kit (incl. adrenalin autoinjector for severe cases) is advised.

Grains and Seeds

Sesame

Sensitisation to sesame was detected. Allergic symptoms associated with sesame allergens range from oral allergy syndrome to severe, anaphylactic reactions.

Ses i 1 is a storage protein associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between storage proteins from sesame and storage proteins from legumes, nuts and seeds is low to moderate. The importance of these cross-reactions has to be analysed on a clinical level. Ses i 1 is stable towards heat and digestion.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Nuts and Legumes

Walnut

Sensitisation to walnut was detected. Allergic symptoms associated with walnut allergens range from oral allergy syndrome to severe, anaphylactic reactions.

Jug r 1,2,4 & 6 are storage proteins associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between storage proteins from walnut and storage proteins from legumes, nuts and seeds is low to moderate. The exception is Jug r 6, which can cross-react with related allergens from tree nuts (e.g. Cor a 11 from hazelnut) and sesame. The importance of these cross-reactions has to be analysed on a clinical level. Jug r 1,2,4 are stable towards heat and digestion. Jug r 6 displays intermediate thermal stability and susceptibility to digestion. Positive results were obtained for: Jug r 4.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Vegetables

Potato

Sensitisation to potato was detected. Allergic symptoms associated with potato allergy range from oral allergy syndrome to gastrointestinal reactions. Skin contact with raw potato may cause local itch and erythema in patients sensitised to birch pollen.

Include extensive patient training on avoidance measures.

Animal Foods (Milk and Egg)

Cow's milk

Sensitisation to milk was detected. Allergic symptoms associated with milk include severe, anaphylactic reactions, as well as gastrointestinal symptoms and worsening of skin status in individuals suffering from atopic dermatitis. Most children can be expected to outgrow their cow's milk allergy.

Bos d 4 and Bos d 5 are heat labile allergens from cow's milk. Well cooked or baked milk will be tolerated by sensitised patients. Positive results were obtained for: Bos d 4, Bos d 5.

Bos d 6 is a heat labile allergen from cow's milk and beef. The degree of cross-reactivity between Bos d 6 and other members of the Serum Albumin allergen family is usually high. A very high degree of cross-reactivity has been described between Fel d 2 from cat and Sus d 1 from pig (cat-pork syndrome). The importance of these cross-reactions has to be analysed on a clinical level. Serum Albumins are not stable towards heat and digestion.

Bos d 8 is a member of the Casein allergen family. The degree of cross-reactivity between caseins from different species is very high. Caseins are stable to heat and digestion.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Aside from Bos d 8, other cow's milk allergens(Bos d 4, 5 and 6) are not stable to heat.

Egg

Sensitisation to hen's egg was detected. Allergic symptoms associated with hen's egg include severe, anaphylactic reactions, as well gastrointestinal symptoms and worsening of skin status in individuals suffering from atopic dermatitis.

Gal d 1 is a member of the Ovomucoid allergen family. The degree of cross-reactivity to Ovomucoids from other bird species is high. Ovomucoids are stable to heat and digestions.

Gal d 2 & 3 are heat labile allergens from hen's egg. Well cooked or baked hen's egg will be tolerated by sensitised patients. Gal d 2 can cause allergic complications in sensitised individuals, who are vaccinated with Gal d 2 (Ovalbumin) containing vaccines. Positive results were obtained for: Gal d 2, Gal d 3.

Include intensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Aside from Gal d 1, hen's egg allergens are not stable to heat.

Goat's milk

Sensitisation to goat's milk was detected. Allergic symptoms associated with goats's milk Include severe, anaphylactic reactions, as well as gastrointestinal symptoms and worsening atopic dermatitis. Most children can be expected to outgrow their goat's milk allergy. The degree of cross-reactivity to cow's milk is high, but not absolute.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Camel's milk and mare's milk are viable alternatives.

Sheep's milk

Sensitisation to sheep's milk was detected. Allergic symptoms associated with sheep's milk Include severe, anaphylactic reactions, as well as gastrointestinal symptoms and worsening of skin status in individuals suffering from atopic dermatitis. Most children can be expected to outgrow their sheeps's milk allergy. The degree of cross-reactivity to cow's milk is high, but not absolute.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Camel's- and mare's milk are viable alternatives.

Edible insects

Sensitisation to edible insects was detected. Allergic symptoms associated with edible insects range from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity is high to other insects (e.g. cockroach) and also to mites and seafood.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Red Meat

Beef

Sensitisation to beef was detected. Allergic symptoms associated with beef range from gastrointestinal symptoms to anaphylaxis. Also, a major manifestation is exacerbation of underlying eczema. Beef allergy can be caused via sensitisation to Serum Albumin (Bos d 6), or via sensitisation to alpha-Gal, a heat resistant sugar in non-primate mammals. Clinical reactions to alpha-Gal often have a delay of 3-6 hours. Tickbites are the main sensitisation route.

Bos d 6 is a heat labile allergen from cow's milk and beef. The degree of cross-reactivity between Bos d 6 and other members of the Serum Albumin allergen family is usually high. A very high degree of cross-reactivity has been described between Fel d 2 from cat and Sus d 1 from pig (cat-pork syndrome). The importance of these cross-reactions has to be analysed on a clinical level. Serum Albumins are not stable towards heat and digestion.

Avoidance is the first-line therapy in alpha-Gal-dependent beef allergy. In Serum Albumin associated beef allergy, heat treatment and other approaches can decrease the allergenicity of beef. Extensive patient training on avoidance measures is advised.

Fish

Sensitisation to fish was detected. Allergic symptoms associated with fish allergy include mild to severe anaphylactic reactions after fish consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapors.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Anisakis simplex

Sensitisation to Anisakis simplex was detected. Allergic symptoms associated with A. simplex include urticaria, gastrointestinal symptoms and anaphylaxis. Anisakis simplex is a nematode that can infect any fish or cephalopods (e.g. squid). Many cases have been reported in Japan and Western Europe, where raw fish is consumed frequently. Fish-processing workers and fishermen also have a certain risk of exposure to A. simplex.

Ani s 3 is a member of the Tropomyosin allergen family. The degree of cross-reactivity between Ani s 3 and other Tropomyosins is high. The importance of these cross-reactions has to be analysed on a clinical level. It is stable to heat and digestion.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Persisting gastrointestinal symptoms may indicate active anisakiasis that may be treated by endoscopic removal of the worm.

Seafood

Crab

Sensitisation to crab was detected. Allergic symptoms associated with crab allergy include mild to severe anaphylactic reactions after consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapors. The degree of cross-reactivity between crusteceans is very high.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Lobster

Sensitisation to lobster was detected. Allergic symptoms associated with lobster allergy include mild to severe anaphylactic reactions after consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapors. The degree of cross-reactivity between crusteceans is very high.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Bivalvia (common mussel, oyster, venus clam, scallop)

Sensitisation to mussels was detected. Allergic symptoms associated with mussels of various species (common mussel, oyster, venus clam, scallop) range from oral allergy syndrome to anaphylaxis. Based on Tropomyosin (e.g. Pen m 1), Troponin C (e.g. Cra c 6) and other allergens, the degree of cross-reactivity between different mussel species can be very high. The importance of these cross-reactions has to be analysed on a clinical level.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Shrimp

Sensitisation to shrimp was detected. Allergic symptoms associated with shrimp allergy include mild to severe anaphylactic reactions after shrimp consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapors. The degree of cross-reactivity between crusteceans is very high.

Pen m 1 is a member of the Tropomyosin allergen family. The degree of cross-reactivity between Pen m 1 and other Tropomyosins is high. It is stable to heat and digestion.

include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Squid

Sensitisation to squid was detected. Allergic symptoms associated with squid allergy include mild to severe anaphylactic reactions after consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapors. Squid commonly cross-reacts with mussels and shrimp.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

DISCLAIMER: THE PRESENCE OF IgE-ANTIBODIES IMPLIES A RISK OF ALLERGIC REACTIONS AND HAS TO BE ANALYZED IN CONJUNCTION WITH THE CLINICAL HISTORY AND OTHER DIAGNOSTIC TEST RESULTS. THE RAVEN INTERPRETATION GUIDANCE SOFTWARE IS A TOOL TO SUPPORT PHYSICIANS IN THE INTERPRETATION OF ALEX² RESULTS. RAVEN COMMENTS DO NOT REPLACE THE DIAGNOSIS BY A PHYSICIAN. NO LIABILITY IS ACCEPTED FOR RAVEN COMMENTS AND RESULTING THERAPEUTIC INTERVENTIONS. THE STATED COMMENTS ARE DESIGNED EXCLUSIVELY FOR ALEX² RESULTS.