

<p>PATIENT ID</p> <p>PATIENT NAME</p> <p>DATE OF BIRTH</p> <p>SAMPLE ID LC_22630</p> <p>BARCODE 02ACX608</p> <p>ANALYZED ON 7/23/2020</p> <p>TESTED ALLERGENS 295</p> <p>TESTMETHODE ALEX²</p>	<p>REFERRING PHYSICIAN</p> <p>NOTE The internal QC (Plausibility check for GD) was within acceptance range.</p>
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Lab report: Summary on detectable sensitisations

POLLEN



MITES



PLANT-BASED FOOD



INSECTS & VENOMS



MICROORGANISMS



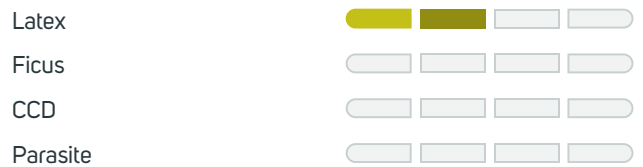
ANIMAL-DERIVED FOOD



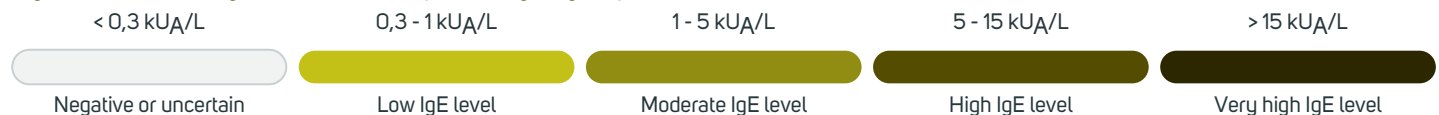
EPITHELIAL TISSUES OF ANIMALS



OTHERS



Highest measured IgE concentration per allergen group



Name	E/M(*)	Allergen	Function	kU _A /L
POLLEN				
Grass Pollen				
Bermuda grass	••••	Cyn d		1,60
	⊙	Cyn d 1	Beta-Expansin	3,24
Perennial Ryegrass	⊙	Lol p 1	Beta-Expansin	4,56
Bahia grass	••••	Pas n		2,68
Timothy grass	⊙	Phl p 1	Beta-Expansin	4,29
	⊙	Phl p 2	Expansin	3,42
	⊙	Phl p 5.0101	Grass Group 5/6	14,14
	⊙	Phl p 6	Grass Group 5/6	3,17
	⊙	Phl p 7	Polcalcin	7,48
	⊙	Phl p 12	Profilin	0,17
Common reed	••••	Phr c		0,71
Cultivated rye, Pollen	••••	Sec c_pollen		2,14
Tree Pollen				
Acacia	••••	Aca m		0,34
Tree of Heaven	••••	Ail a		0,26
Alder	⊙	Aln g 1	PR-10	1,24
	⊙	Aln g 4	Polcalcin	9,19
Silver birch	⊙	Bet v 1	PR-10	4,47
	⊙	Bet v 2	Profilin	0,35
	⊙	Bet v 6	Isoflavon Reductase	0,14
Paper mulberry	••••	Bro pa		0,26
Hazel pollen	••••	Cor a_pollen		1,02
	⊙	Cor a 1.0103	PR-10	1,29
Sugi	⊙	Cry j 1	Pectate Lyase	2,90
Cypress	⊙	Cup a 1	Pectate Lyase	2,87
	••••	Cup s		≤ 0,10
Beech	⊙	Fag s 1	PR-10	1,57
Ash	••••	Fra e		≤ 0,10
	⊙	Fra e 1	Ole e 1-Family	≤ 0,10
Walnut pollen	••••	Jug r_pollen		0,87
Mountain cedar	••••	Jun a		0,12
Mulberry	••••	Mor r		0,18
Olive	⊙	Ole e 1	Ole e 1-Family	≤ 0,10
	⊙	Ole e 9	1,3 β Glucanase	≤ 0,10
Date palm	⊙	Pho d 2	Profilin	0,31

Name	E/M(*)	Allergen	Function	kU _A /L
London plane tree		Pla a 1	Plant Invertase	≤ 0,10
		Pla a 2	Polygalacturonase	≤ 0,10
		Pla a 3	nsLTP	0,97
Cottonwood		Pop n		0,13
Elm		Ulm c		≤ 0,10

Weed Pollen

Common Pigweed		Ama r		0,37
Ragweed		Amb a		1,74
		Amb a 1	Pectate Lyase	3,52
		Amb a 4	Plant Defensin	0,12
Mugwort		Art v		0,75
		Art v 1	Plant Defensin	≤ 0,10
		Art v 3	nsLTP	1,12
Hemp		Can s		0,19
		Can s 3	nsLTP	0,98
Lamb's quarter		Che a		0,12
		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	≤ 0,10
Ribwort		Pla l		1,31
		Pla l 1	Ole e 1-Family	0,19
Russian thistle		Sal k		0,28
		Sal k 1	Pectin Methylesterase	0,56
Nettle		Urt d		0,16

MITES

House Dust Mite

American house dust mite		Der f 1	Cysteine protease	6,85
		Der f 2	NPC2 Family	13,94
European house dust mite		Der p 1	Cysteine protease	6,12
		Der p 2	NPC2 Family	16,48
		Der p 5	unknown	7,85
		Der p 7	Mites, Group 7	1,44
		Der p 10	Tropomyosin	8,08
		Der p 11	Myosin, heavy chain	1,54
		Der p 20	Arginine kinase	10,33

Name	E/M(*)	Allergen	Function	kU _A /L
		Der p 21	unknown	10,26
		Der p 23	Peritrophin-like protein domain	4,96

Storage Mite

Acarus siro		Aca s		1,17
Blomia tropicalis		Blo t 5	Mites, Group 5	1,18
		Blo t 10	Tropomyosin	6,64
		Blo t 21	unknown	≤ 0,10
Glycyphagus domesticus		Gly d 2	NPC2 Family	4,56
Lepidoglyphus destructor		Lep d 2	NPC2 Family	5,27
Tyrophagus putrescentiae		Tyr p		0,72
		Tyr p 2	NPC2 Family	0,47

MICROORGANISMS & SPORES

Yeast

Malassezia sympodialis		Mala s 5	unknown	4,54
		Mala s 6	Cyclophilin	0,38
		Mala s 11	Mn Superoxid-Dismutase	4,11
Yeast		Sac c		≤ 0,10

Moulds

Alternaria alternata		Alt a 1	Alt a 1-Family	13,04
		Alt a 6	Enolase	0,25
Aspergillus fumigatus		Asp f 1	Mitogillin Family	≤ 0,10
		Asp f 3	Peroxisomal Protein	1,75
		Asp f 4	unknown	0,23
		Asp f 6	Mn Superoxid-Dismutase	0,44
Cladosporium herbarum		Cla h		≤ 0,10
		Cla h 8	Short Chain Dehydrogenase	≤ 0,10
Penicilium chrysogenum		Pen ch		≤ 0,10

PLANT FOOD

Legumes

Peanut		Ara h 1	7/8S Globulin	7,40
		Ara h 2	2S Albumin	4,22
		Ara h 3	11S Globulin	2,49
		Ara h 6	2S Albumin	2,52

Name	E/M(*)	Allergen	Function		kU _A /L
	⊙	Ara h 8	PR-10		1,36
	⊙	Ara h 9	nsLTP		2,14
	⊙	Ara h 15	Oleosin		1,37
Chickpea	⦿	Cic a			≤ 0,10
Soy	⊙	Gly m 4	PR-10		0,45
	⊙	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			0,14
White bean	⦿	Pha v			0,44
Pea	⦿	Pis s			≤ 0,10
Cereals					
Oat	⦿	Ave s			1,76
Quinoa	⦿	Che q			≤ 0,10
Common buckwheat	⦿	Fag e			≤ 0,10
	⊙	Fag e 2	2S Albumin		≤ 0,10
Barley	⦿	Hor v			0,41
Lupine seed	⦿	Lup a			≤ 0,10
Rice	⦿	Ory s			0,12
Millet	⦿	Pan m			0,16
Cultivated rye	⦿	Sec c_flour			1,10
Wheat	⊙	Tri a aA_TI	Alpha-Amylase Trypsin-Inhibitor		0,38
	⊙	Tri a 14	nsLTP		1,27
	⊙	Tri a 19	Omega-5-Gliadin		0,20
Spelt	⦿	Tri s			0,52
Maize	⦿	Zea m			1,41
	⊙	Zea m 14	nsLTP		2,54
Spices					
Paprika	⦿	Cap a			0,13
Caraway	⦿	Car c			≤ 0,10
Oregano	⦿	Ori v			≤ 0,10
Parsley	⦿	Pet c			0,24
Anise	⦿	Pim a			0,20
Mustard	⦿	Sin			0,25
	⊙	Sin a 1	2S Albumin		0,99
Fruit					

Name	E/M(*)	Allergen	Function	kU _A /L
Kiwi	⊙	Act d 1	Cysteine protease	0,45
	⊙	Act d 2	TLP	0,59
	⊙	Act d 5	Kiwelin	≤ 0,10
	⊙	Act d 10	nsLTP	0,67
Papaya	⬢	Car p		≤ 0,10
Orange	⬢	Cit s		≤ 0,10
Melon	⊙	Cuc m 2	Profilin	0,21
Fig	⬢	Fic c		≤ 0,10
Strawberry	⊙	Fra a 1+3	PR-10+LTP	4,13
Apple	⊙	Mal d 1	PR-10	2,32
	⊙	Mal d 2	TLP	≤ 0,10
	⊙	Mal d 3	nsLTP	3,69
Mango	⬢	Man i		≤ 0,10
Banana	⬢	Mus a		≤ 0,10
Avocado	⬢	Pers a		0,15
Cherry	⬢	Pru av		≤ 0,10
Peach	⊙	Pru p 3	nsLTP	2,66
Pear	⬢	Pyr c		0,46
Blueberry	⬢	Vac m		0,41
Grapes	⊙	Vit v 1	nsLTP	1,65
Vegetables				
Onion	⬢	All c		≤ 0,10
Garlic	⬢	All s		0,70
Celery	⊙	Api g 1	PR-10	0,14
	⊙	Api g 2	nsLTP	2,88
	⊙	Api g 6	nsLTP	0,14
Carrot	⬢	Dau c		0,35
	⊙	Dau c 1	PR-10	0,17
Potato	⬢	Sol t		0,36
Tomato	⬢	Sola l		1,04
	⊙	Sola l 6	nsLTP	≤ 0,10
Nuts				
Cashew	⬢	Ana o		4,64
	⊙	Ana o 2	11S Globulin	0,68
	⊙	Ana o 3	2S Albumin	2,24
Brazil nut	⬢	Ber e		0,14
	⊙	Ber e 1	2S Albumin	≤ 0,10

Name	E/M(*)	Allergen	Function	kU _A /L
Pecan	●●●●	Car i		2,29
Hazelnut	⊙	Cor a 1.0401	PR-10	1,49
	⊙	Cor a 8	nsLTP	0,75
	⊙	Cor a 9	11S Globulin	0,27
	⊙	Cor a 11	7/8S Globulin	0,21
	⊙	Cor a 14	2S Albumin	2,79
Walnut	⊙	Jug r 1	2S Albumin	5,13
	⊙	Jug r 2	7/8S Globulin	1,94
	⊙	Jug r 3	nsLTP	1,67
	⊙	Jug r 4	11S Globulin	0,35
	⊙	Jug r 6	7/8S Globulin	0,58
Macadamia	⊙	Mac i 2S Albumin	2S Albumin	0,17
	●●●●	Mac inte		≤ 0,10
Pistachio	⊙	Pis v 1	2S Albumin	2,06
	⊙	Pis v 2	11S Globulin subunit	0,28
	⊙	Pis v 3	7/8S Globulin	0,28
Almond	●●●●	Pru du		0,47
Seed				
Pumpkin seed	●●●●	Cuc p		0,11
Sunflower seed	●●●●	Hel a		0,61
Poppy seed	●●●●	Pap s		0,17
	⊙	Pap s 2S Albumin	2S Albumin	≤ 0,10
Sesame	●●●●	Ses i		≤ 0,10
	⊙	Ses i 1	2S Albumin	0,12
Fenugreek seeds	●●●●	Tri fo		0,21
ANIMAL FOOD				
Milk				
Cow, milk	●●●●	Bos d_milk		6,11
	⊙	Bos d 4	α-Lactalbumin	0,70
	⊙	Bos d 5	β-Lactoglobulin	2,31
	⊙	Bos d 8	Casein	9,79
Camel	●●●●	Cam d		0,54
Goat, milk	●●●●	Cap h_milk		3,97
Mare's milk	●●●●	Equ c_milk		≤ 0,10
Sheep, milk	●●●●	Ovi a_milk		4,63
Egg				

Name	E/M(*)	Allergen	Function	kU _A /L
Egg white	••••	Gal d_white		3,67
Egg yolk	••••	Gal d_yolk		1,14
Egg white	⊙	Gal d 1	Ovomucoid	≤ 0,10
	⊙	Gal d 2	Ovalbumin	0,84
	⊙	Gal d 3	Ovotransferrin	2,12
	⊙	Gal d 4	Lysozym C	0,18
Egg yolk	⊙	Gal d 5	Serum Albumin	2,86
Seafood				
Herring worm	⊙	Ani s 1	Kunitz Serin Protease Inhibitor	≤ 0,10
	⊙	Ani s 3	Tropomyosin	3,16
Crab	••••	Chi spp.		1,63
Herring	••••	Clu h		0,40
	⊙	Clu h 1	β-Parvalbumin	4,23
Brown shrimp	⊙	Cra c 6	Troponin C	≤ 0,10
Carp	⊙	Cyp c 1	β-Parvalbumin	2,10
Atlantic cod	••••	Gad m		1,47
	⊙	Gad m 2+3	β-Enolase & Aldolase	≤ 0,10
	⊙	Gad m 1	β-Parvalbumin	1,14
Lobster	••••	Hom g		0,80
Shrimp	••••	Lit s		1,13
Squid	••••	Lol spp.		0,54
Common mussel	••••	Myt e		0,21
Oyster	••••	Ost e		0,46
Shrimp	••••	Pan b		1,73
Scallop	••••	Pec spp.		≤ 0,10
Black Tiger Shrimp	⊙	Pen m 1	Tropomyosin	1,98
	⊙	Pen m 2	Arginine kinase	2,98
	⊙	Pen m 3	Myosin, light chain	1,23
	⊙	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.		0,72
Salmon	••••	Sal s		≤ 0,10
	⊙	Sal s 1	β-Parvalbumin	1,85
Atlantic mackerel	••••	Sco s		0,39
	⊙	Sco s 1	β-Parvalbumin	3,40

Name	E/M(*)	Allergen	Function	kU _A /L
Tuna		Thu a		≤ 0,10
		Thu a 1	β-Parvalbumin	4,40
Swordfish		Xip g 1	β-Parvalbumin	4,30
Meat				
House cricket		Ach d		2,17
Cattle, meat		Bos d_meat		≤ 0,10
		Bos d 6	Serum Albumin	≤ 0,10
Horse, meat		Equ c_meat		0,14
Chicken meat		Gal d_meat		≤ 0,10
Migratory locust		Loc m		2,50
Turkey		Mel g		0,54
Rabbit, meat		Ory_meat		≤ 0,10
Sheep, meat		Ovi a_meat		0,67
Pork		Sus d_meat		0,16
		Sus d 1	Serum Albumin	3,45
Mealworm		Ten m		2,86
HYMENOPTERA VENOMS				
Fire ant poison				
Fire ant		Sol spp.		0,16
Honey Bee Venom				
Honey bee		Api m		≤ 0,10
		Api m 1	Phospholipase A2	≤ 0,10
		Api m 10	Icarapin Variant 2	0,23
Wasp Venom				
Hornet		Dol spp		≤ 0,10
Paper wasp venom		Pol d		0,34
		Pol d 5	Antigen 5	≤ 0,10
Wasp venom		Ves v		≤ 0,10
		Ves v 1	Phospholipase A1	≤ 0,10
		Ves v 5	Antigen 5	0,30
Cockroach				
German Cockroach		Bla g 1	Cockroach Group 1	43,81
		Bla g 2	Aspartyl protease	≤ 0,10
		Bla g 4	Lipocalin	0,36
		Bla g 5	Glutathione S-transferase	≤ 0,10

Name	E/M(*)	Allergen	Function	kU _A /L
American Cockroach	⊙	Bla g 9	Arginine kinase	13,16
	⊙	Per a		8,75
	⊙	Per a 7	Tropomyosin	4,05

ANIMAL ORIGIN

Pet

Dog	⊙	Can f_Fd1	Uteroglobin	13,93
Male dog urine (incl. Can f 5)	⊙	Can f_male urine		8,51
Dog	⊙	Can f 1	Lipocalin	8,30
	⊙	Can f 2	Lipocalin	6,87
	⊙	Can f 3	Serum Albumin	12,93
	⊙	Can f 4	Lipocalin	24,34
	⊙	Can f 6	Lipocalin	19,80
	Guinea pig	⊙	Cav p 1	Lipocalin
Cat	⊙	Fel d 1	Uteroglobin	16,67
	⊙	Fel d 2	Serum Albumin	6,05
	⊙	Fel d 4	Lipocalin	4,16
	⊙	Fel d 7	Lipocalin	4,13
House mouse	⊙	Mus m 1	Lipocalin	0,38
Rabbit, epithel	⊙	Ory c 1	Lipocalin	0,12
	⊙	Ory c 2	Lipophilin	≤ 0,10
	⊙	Ory c 3	Uteroglobin	1,69
Djungarian hamster	⊙	Phod s 1	Lipocalin	0,35
Rat	⊙	Rat n		1,05

Farm Animals

Cattle	⊙	Bos d 2	Lipocalin	≤ 0,10
Goat, epithel	⊙	Cap h_epithelia		1,89
Horse, epithel	⊙	Equ c 1	Lipocalin	5,50
	⊙	Equ c 3	Serum Albumin	1,66
	⊙	Equ c 4	Latherin	≤ 0,10
Sheep, epithel	⊙	Ovi a_epithelia		≤ 0,10
Pig	⊙	Sus d_epithelia		1,77

OTHERS

Latex

Latex	⊙	Hev b 1	Rubber elongation factor	≤ 0,10
	⊙	Hev b 3	Small rubber particle protein	0,13

Name	E/M(*)	Allergen	Function		kU _A /L
		Hev b 5	unknown		2,78
		Hev b 6.02	Pro-Hevein		1,52
		Hev b 8	Profilin		≤ 0,10
		Hev b 11	Class 1 Chitinase		≤ 0,10

Ficus

Weeping fig		Fic b			0,15
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CCD

Hom s Lactoferrin		Hom s LF	CCD		≤ 0,10
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Parasite

Pigeon tick		Arg r 1	Lipocalin		≤ 0,10
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Total IgE: 1726 kU/L

Normal Total-IgE

Adults: < 20 kU/l Allergy unlikely, 20 - 100 kU/l Allergy possible, > 100 kU/l Allergy likely

ANALYZED ON

7/23/2020

APPROVED ON

7/23/2020

ALEX² – Number of tested allergen sources:

165

	GRASS POLLEN Bahia grass, Bermuda grass, Common reed, Perennial ryegrass, Rye, Timothy grass	6		COCKROACH American cockroach, German cockroach	2
	TREE POLLEN 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	19		INSECT VENOMS Common wasp venom, Fire ant venom, Honeybee venom, Long-headed wasp venom, Paper wasp venom	5
	WEED POLLEN Annual mercury, Hemp, Lamb's quarter, Mugwort, Nettle, Pigweed, Ragweed, Ribwort, Russian thistle, Wall pellitory	10		FUNGAL SPORES & YEAST Alternaria alternata, Aspergillus fumigatus, Baker's yeast, Cladosporium herbarum, Malassezia sympodialis, Penicillium chrysogenum	6
	HOUSE DUST MITES & STORAGE MITES Acarus siro, American house dust mite, Blomia tropicalis, European house dust mite, Glycyphagus domesticus, Lepidoglyphus destructor, Tyrophagus putrescentiae	7		MILK Camel's milk, Cow's milk, Goat's milk, Mare's milk, Sheep's milk	5
	LEGUMES Chickpea, White bean, Lentil, Pea, Peanut, Soy	6		EGG Egg white, Egg yolk	2
	GRAIN Barley, Buckwheat, Corn, Cultivated rye, Lupine, Millet, Oat, Quinoa, Rice, Spelt, Wheat	11		FISH & SEAFOOD 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	20
	SPICES Anise, Caraway, Mustard, oregano, Paprika, Parsley	6		MEAT Beef, Chicken, Horse, House cricket, Lamb, Mealworm, Migratory locust, Pig, Rabbit, Turkey	10
	FRUITS Avocado, Apple, Banana, Blueberry, Cherry, Fig, Grape, Kiwi, Mango, Muskmelon, Orange, Papaya, Peach, Pear, Strawberry	15		PETS Cat, Djungarian hamster, Dog, Guinea pig, Mouse, Rabbit, Rat	7
	VEGETABLES Carott, Celery, Garlic, Onion, Potato, Tomato	6		FARM ANIMALS Cattle, Goat, Horse, Pig, Sheep	5
	NUTS & SEEDS Almond, Brazil nut, Cashew, Hazelnut, Macadamia, Pecan, Pistachio, Walnut, Fenugreek seeds, Poppy seed, Pumpkin seed, Sesame, Sunflower seed	13		OTHERS Latex, Hom s lactoferrin, Pigeon tick, Weeping fig	4

RAVEN[®]

INTERPRETATION GUIDANCE SOFTWARE

Interpretation - Support

Raven Interpretation Summary

Sample Information

The sample was tested on ALEX² Barcode 02ACX608, interpretation date 8/13/2020.

Of the tested 295 allergens, 171 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 ALEX 2 allergens, comments for interpretation guidance are listed below.

Total IgE: 1726 kU/L

The measured total IgE was 1726 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:

- PR-10s: Aln g 1, Ara h 8, Bet v 1, Cor a 1.0103, Cor a 1.0401, Fag s 1, Gly m 4, Mal d 1
- nsLTps: Act d 10, Api g 2, Ara h 9, Art v 3, Can s 3, Cor a 8, Jug r 3, Mal d 3, Pla a 3, Pru p 3, Tri a 14, Vit v 1, Zea m 14
- Profilins: Bet v 2, Pho d 2
- Parvalbumins: Clu h 1, Cyp c 1, Gad m 1, Sal s 1, Sco s 1, Thu a 1, Xip g 1
- Cysteine Proteases: Act d 1, Der f 1, Der p 1
- Polcalcins: Aln g 4, Phl p 7
- Storage Proteins: Ana o 2, Ana o 3, Ara h 1, Ara h 2, Ara h 3, Ara h 6, Cor a 14, Jug r 1, Jug r 2, Jug r 4, Jug r 6, Pis v 1, Sin a 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, Equ c 1, Fel d 4, Fel d 7, Mus m 1, Phod s 1
- Arginin Kinases: Bla g 9, Der p 20, Pen m 2

PR-10 Proteins (PR10)

PR-10 inhalative: The major birch pollen allergen, Bet v 1, represents the prototype of all PR-10 allergens and is the primary sensitiser in regions with birch-pollen exposure. The presence of PR-10 allergens in birch related tree pollen explains possible IgE cross-reactivity between pollen from hazel, alder, beech, oak and hornbeam. PR-10 nutritive: PR-10 allergens in fresh fruits, nuts, vegetables and legumes can induce oral allergy syndrome and sometimes even severe allergic reactions in sensitised individuals. PR-10 allergens are not stable to heat and digestion.

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.

Profilins (PF)

Members of the Profilin allergen family can cause inhalative symptoms, as well as mild forms of food allergy. Profilins are present in all plant based allergen sources. Inhalative symptoms - if they occur at all - are usually mild. Profilin food allergy is usually mild and restricted to oral allergy syndrome. Profilins from foods are not resistant to heat and digestion.

Parvalbumins (PV)

Parvalbumins are the major allergens from fish species. The degree of cross-reactivity between different Parvalbumins is high, but not absolute. Parvalbumins are resistant to heat and digestion. α -Parvalbumin from thornback ray has been described as hypoallergenic.

Cysteine Proteases (CP)

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.

Polcalcins (Ca⁺⁺ binding proteins, PC)

Members of the PC allergen family can cause inhalative symptoms. PC allergens can be found in pollen from grasses, trees and weeds. Inhalative

symptoms manifest as allergic rhino-conjunctivitis and/or allergic asthma.

Storage Proteins (SP)

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 (TM)

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 (LC)

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.

Arginin Kinase (AK)

Arginine Kinases show a very high degree of cross-reactivity. AK from food sources can elicit allergic reactions. Sensitisations against AKs can occur after ingestion (seafood) and inhalation (cockroaches, mites, seafood). AKs are not stable towards heat and digestion.

Tree Pollen

Acacia

Sensitisation to acacia pollen was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma. Especially floriculturists are at risk of developing symptoms.

A causal treatment via AIT is not available. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Birch Family

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

Aln g 1 is a member of the PR-10 allergen family and is associated with inhalative symptoms and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Aln g 1 and pollen- as well as food-allergens from the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. Aln g 1 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Aln g 4 is a member of the Polcalcin allergen family and is associated with inhalative symptoms. The degree of cross-reactivity between Aln g 4 and other members of the Polcalcin allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level.

Bet v 1 is the major allergen in birch pollen and a member of the PR-10 allergen family. It is associated with inhalative symptoms and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Bet v 1 and pollen- as well as food-allergens from the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. Bet v 1 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Bet v 2 is a member of the Profilin allergen family and is associated with inhalative symptoms and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Bet v 2 and between other members of the Profilin allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level.

Cor a 1.0103 is a member of the PR-10 family and is associated with inhalative symptoms and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Cor a 1.0103 and pollen- as well as food-allergens from the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. Cor a 1.0103 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Fag s 1 is a member of the PR-10 allergen family and is associated with inhalative symptoms and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Fag s 1 and between other members of the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level.

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

Cypress Family

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

Cry j 1 is a member fo the Pectate Lyase allergen family. The degree of cross-reactivity between different cypress species based on Pectate Lyases is high. Cry j 1 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Cup a 1 is a member fo the Pectate Lyase allergen family. The degree of cross-reactivity between different cypress species based on Pectate Lyases is high. Cup 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 corticosteroids in various formulations (tablet, spray).

Date Palm

Sensitisation to date palm pollen was detected. Allergic symptoms associated with date palm pollen range from allergic rhinoconjunctivitis to allergic

asthma.

Pho d 2 is a member of the Profilin allergen family and is associated with inhalative symptoms and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Pho d 2 and other members of the Profilin allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level.

A causal treatment via AIT may not be available. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

London Plane Tree

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

Pla a 3 is a member of the nsLTP allergen family. The degree of cross-reactivity to most other members of this family can be considered high. Pla a 3 reactivity is frequently associated with nsLTP sensitisation in Mediterranean patients. AIT is not indicated, when Pla a 3 is the only positive allergen from London Plane Tree pollen. Pla a 3 reactivity is frequently found positive in patients with food allergy caused by nsLTPs.

A causal treatment via AIT is a possible way to treat London Plane tree allergics. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Walnut Tree

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

A causal treatment via AIT may not be available. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Grass pollen

Sensitisation to grass pollen was detected. Allergic symptoms associated with grass pollen range from allergic rhinoconjunctivitis to allergic asthma.

Cyn d 1, Lol p 1 and Phl p 1 are members of the β -Expansin allergen family. The degree of cross-reactivity between members of this allergen family is very high. β -Expansins serve as markers for AIT indication, if corresponding clinical symptoms are present. Positive results were obtained for: Cyn d 1, Lol p 1, Phl p 1.

Phl p 2 is a member of the Expansin allergen family. The degree of cross-reactivity between members of this allergen family is very high. Along with Phl p 1 and 5, Phl p 2 serves as a marker of true grass-pollen Sensitisation. Patients with isolated Sensitisation to Phl p 2 are not suitable candidates for AIT.

Phl p 5 is a member of the Grass Group 5/6 allergen family. The degree of cross-reactivity between members of this allergen family is high, although not in all grass pollen species a Grass Group 5/6 allergen has been described. Along with Phl p 1 and Phl p 2, Phl p 5 serves as marker of true grass-pollen sensitisation. Phl p 1 and 5 serve as markers for AIT indication, if corresponding clinical symptoms are present.

Phl p 6 is a member of the Grass Group 5/6 allergen family. The degree of cross-reactivity between members of this allergen family is high.

Phl p 7 is a member of the Polcalcin allergen family and is associated with inhalative symptoms during pollen seasons of grasses, trees and weeds. The degree of cross-reactivity between Phl p 7 and other members of the Polcalcin family is very high. The importance of these cross-reactions has to be analysed on a clinical level.

Causal treatment is possible via AIT - Phl p 1 and 5 serve as markers for AIT indication, if corresponding are present. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Weed Pollen

Hemp

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

Can s 3 is a member of the nsLTP allergen family. The degree of cross-reactivity to most other members of this family can be considered medium to high. Can s 3 reactivity is frequently associated with nsLTP sensitisation in Mediterranean patients. Can s 3 reactivity is frequently found positive in patients with food allergy caused by nsLTPs.

Causal treatment via AIT is not available. Symptomatic treatment includes anti-histamines, local corticosteroids in various formulations and avoidance (tablet, spray).

Mugwort

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

Art v 3 is a member of the nsLTP allergen family. The degree of cross-reactivity to most other members of this family can be considered medium to high. Art v 3 reactivity is frequently associated with nsLTP sensitisation in Mediterranean patients. AIT is not indicated, when Art v 3 is the only positive allergen from mugwort pollen. Art v 3 reactivity is frequently found positive in patients with food allergy caused by nsLTPs.

Causal treatment is possible via AIT - Art v 1 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).

Pigweed

Sensitisation to pollen from pigweed was detected. Allergic symptoms associated with this allergen source include allergic rhinoconjunctivitis.

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

Ragweed

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

Amb a 1 is a member of the Pectate Lyase allergen family. The degree of cross-reactivity to allergens from the same family is moderate (e.g. with Art v 6 from mugwort). Amb a 1 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Causal treatment is possible via AIT - Amb a 1 serves as a marker for AIT indication, if clinical symptoms are present. Symptomatic treatment includes anti-histamines and local corticosteroids in various formulations (tablet, spray).

Ribwort

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

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

Russian Thistle

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

Sal k 1 is a member of the Pectin Methylesterase allergen family. So far, two other members of this allergen family have been described, in kiwi and in olive pollen. The degree of cross-reactivity is considered low to moderate to related allergens. Sal k 1 serves as a marker for AIT indication, if corresponding clinical symptoms are present.

Causal treatment is possible via AIT - Sal k 1 serves as a marker for AIT indication. 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 2 is a member of the Serum Albumin allergen family (SA). The degree of cross-reactivity to other members of the SA family is very high (e.g. Can f 3 from dog). Sensitisation to Fel d 2 can also lead to cat-pork syndrome.

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.

Djungarian hamster

Sensitisation to Djungarian hamster was detected. Allergic symptoms associated with this allergen source range from allergic rhino-conjunctivitis to allergic asthma. Most reactions happen during cleaning of Djungarian hamsters cages.

Phod s 1 is a member of the Lipocalin allergen family. The degree of cross-reactivity to other members of this allergen family is low, even to Lipocalins from other hamster species like golden hamster or European hamster.

AIT for causal treatment may not be available. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Due to the limited degree of cross-reactivity, a hamster of a different species may be tolerated.

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 3 is a member of the Serum Albumin allergen family (SA). The degree of cross-reactivity with SAs from other species is very high, with the exception of Gal d 5 from hen's egg yolk. The highest concentration is found in epithelia.

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 5 is a member of the Arginine Esterase allergen family. It is a major allergen in male dogs only. Female and castrated dogs do not express Can f 5 in significant amounts. Also, patients sensitised to Can f 5 may react to human seminal fluid.

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.

Can f Fel d 1 like is a member of the Uteroglobin like allergen family. The degree of cross-reactivity to Fel d 1 from cat is moderate.

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.

Goat

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

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 3 is a member of the Serum Albumin allergen family (SA). The degree of cross-reactivity between members of this family is very high. Aside from inhalative reactions, Equ c 3 could elicit symptoms in horse meat or other red meat allergic patients.

If avoidance of horses is not possible an AIT can be prescribed - Equ c 1 serves a marker for AIT indication, if corresponding clinical symptoms 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.

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.

Pig

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

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.

Rat

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

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).

Aspergillus

Sensitisation to spores from *Aspergillus fumigatus* was detected. Allergic symptoms associated with *A. fumigatus* range from allergic rhinoconjunctivitis to allergic asthma, and also include allergic bronchopulmonary aspergillosis (ABPA). *Aspergillus fumigatus* is an indoor fungal species.

Asp f 3 is a member of the Peroxysomal Protein allergen family and is associated with *A. fumigatus* allergy and strongly associated with ABPA.

Asp f 6 is a member of the Mn-SOD allergen family and is associated with ABPA, but not *A. fumigatus* allergy.

Causal treatment is possible via AIT. Symptomatic treatment includes anti-histamines as well as local corticosteroids in various formulations (tablet, spray). Therapeutic options for ABPA include systemic corticosteroids and itraconazole or omalizumab. Exposition prophylaxis is also an important treatment strategy.

Malassezia sympodialis

Sensitisation to *Malassezia sympodialis* (MS) was detected. This is common in adult atopic dermatitis patients but rare in healthy individuals. Especially seborrheic skin sites (e.g. head, neck) are preferable colonisation sites.

Mala s 5 is a member of the Redoxin allergen family. The degree of cross-reactivity to other members of this allergen family (from moulds and yeasts) is moderate.

Mala s 6 is a member of the Cyclophilin allergen family. The degree of cross-reactivity to other members of this family is high.

Mala s 11 is a member of the Mn Superoxide Dismutase. The degree of cross-reactivity to other members of this allergen family is high. Mala s 11 is capable of inducing autoreactive T-cells in humans. The significance of this allergen for skin inflammation in atopic dermatitis (AD) was substantiated by a strong correlation between AD severity and Mala s 11 Sensitisation.

Skin emollients are the basis of AD therapy. In case of clinically manifest skin inflammation during AD flares, anti-inflammatory treatment is necessary. AD patients may benefit from an antifungal therapy that is effective against *Malassezia*.

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 5 is a member of the Mite Group 5/21 allergen family (MG 5/21). The degree of cross-reactivity to other members of the MG 5/21 allergen family is moderate (e.g. to Blo t 5).

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 11 is a member of the Myosin Heavy Chain allergen family. High levels of Der p 11 specific IgE have been found in patients suffering from atopic dermatitis. The degree of cross-reactivity is high for its pendants in *D. farinae* & *B. tropicalis*.

Der p 20 is a member of the Arginine Kinase allergen family (AK). The degree of cross-reactivity to other Arginine Kinases is very high (e.g. Bla g 9 from cockroach & Pen m 2 from shrimp). It is not stable to heat and digestion. The allergic potential of Der p 20 has not been analyzed yet.

Der p 21 is a member of the Mite Group 5/21 allergen family (MG 5/21). The degree of cross-reactivity to other members of the MG 5/21 allergen family is moderate to high between Der p 21 and Blo t 21.

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 family is not clear.

Allergen avoidance is advised. Encasings for blankets, mattresses 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 *Blomia tropicalis* 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.

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

Tyr p 2 is a member of the NPC2 allergen family. The degree of cross-reactivity between different members of the NPC2 allergen family (from other mite species) is low to moderate. Tyr p 2 may serve as a marker for AIT indication, if corresponding clinical symptoms are present.

Allergen avoidance is advised. Encasings for blankets, mattresses 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.

Bla g 4 is a member of the Calycin allergen family. Cross-reactions to other members of the calycin allergen family have been described.

Bla g 9 is a member of the Arginine Kinase allergen family (AK) and can cause predominately mild reactions. The degree of cross-reactivity to other Arginine Kinases is very high (e.g. Der p 20 from house dust mite or Pen m 2 from shrimp). It is not stable to heat and digestion.

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

Wasp

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

Ves v 5 is a member of the Antigen 5 allergen family, which serves as a marker for AIT indication, if corresponding clinical symptoms are present. The degree of cross-reactivity between Ves v 5 and other members of the Antigen 5 allergen family is high to other vespula species and lower to dolichovespula and vespa species.

As avoidance of wasps is difficult, AIT is the major therapy option in wasp venom allergy. Additionally the prescription of an emergency kit (incl. adrenalin autoinjector for severe cases) is advised.

Cereals and Seeds

Barley

Sensitisation to barley was detected. Allergic symptoms associated with barley Include immediate and exercise induced anaphylaxis, baker's asthma, gastrointestinal- and skin reactions. Allergy to beer can also be caused by an underlying sensitisation to barley.

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

Corn

Sensitisation to corn was detected. Allergic symptoms associated with corn range from oral allergy syndrome to anaphylactic reactions. Corn allergens can also induce baker's asthma. Many cases of corn allergy were reported from Italy due to the high consumption of polenta.

Zea m 14 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between members of the nsLTP family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Zea m 14 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).

Rye flour

Sensitisation to rye (flour) was detected. Allergic symptoms associated with rye Include immediate and exercise induced anaphylaxis, baker's asthma, gastrointestinal- and skin reactions.

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

Oat

Sensitisation to oat was detected. Allergic symptoms associated with oat include baker's asthma, anaphylaxis and skin reactions. A high prevalence of oat sensitisation has been found in children suffering from atopic dermatitis.

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

Spelt

Sensitisation to spelt (flour) was detected. Allergic symptoms associated with spelt Include immediate and exercise induced anaphylaxis, baker's asthma, gastrointestinal- and skin reactions.

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

Sunflower seed

Sensitisation to sunflower seed was detected. Allergic symptoms associated with sunflower seeds range from oral allergy syndrome to severe anaphylactic reactions.

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

Wheat

Sensitisation to wheat (flour) was detected. Allergic symptoms associated with wheat include immediate and exercise induced anaphylaxis, baker's asthma, gastrointestinal- and skin reactions.

Tri a 14 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between members of the nsLTP allergen family is high within botanically closely related species (e.g. stone fruit) and moderate between less closely related species. The importance of these cross-reactions has to be analysed on a clinical level. Tri a 14 is stable towards heat and digestion.

Alpha-amylase trypsin inhibitor from wheat is associated the development of baker's asthma.

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

Fruits

Apple

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

Mal d 1 is a member of the PR-10 allergen family and is associated with mild forms of apple allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Mal d 1 and other members of the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. In most cases an Mal d 1 sensitisation is caused by a primary sensitisation against Bet v 1 from birch pollen. Mal d 1 is not stable towards heat and digestion.

Mal d 3 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between Mal d 3 and other members of the nsLTP family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Mal d 3 is stable towards heat and digestion.

As Mal d 1 is heat sensitive, baked or cooked apple can be consumed without danger for clinical reactions. In case of genuine apple allergy due to sensitisations to Mal d 2 and/or 3, avoidance is the therapeutic option of choice. Mal d 3 is primarily located in fruit skin, peeled apple is tolerated by most patients with Mal d 3 sensitisation. Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Blueberry

Sensitisation to blueberry was detected. Allergic symptoms associated with blueberry range from oral allergy syndrome to anaphylaxis. Severe cases may be caused by nsLTP allergens.

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

Grape

Sensitisation to grape was detected. Allergic symptoms associated with grape range from oral allergy syndrome to anaphylaxis. Anaphylactic reactions were described after the intake of wine. Occupational grape allergy causes mainly inhalative symptoms.

Vit v 1 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between Vit v 1 and other members of the nsLTP allergen family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Vit v 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).

Kiwi

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

Act d 1 is a member of the Cysteine Protease allergen family (CP). The degree of cross-reactivity to other members of the CP family is presumed low outside different kiwi cultivars. Act d 1 is stable to heat and digestion.

Act d 2 is a member of the TLP allergen family. So far, the clinical importance of TLPs has not been elucidated. The degree of cross-reactivity between Act d 2 and other members (e.g. Mal d 2 from apple) of the TLP allergen family is high. The importance of a TLP Sensitisation has to be analysed on a clinical level. Stability studies showed that TLPs are resistant to heat and digestion.

Act d 10 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between members of the nsLTP family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Act d 10 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).

Peach

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

Pru p 3 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between Pru p 3 and other members of the nsLTP allergen family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Pru p 3 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). As Pru p 3 is primarily located in fruit skin, peeled peach is tolerated by most patients.

Pear

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

Concomitant to pear are occasional allergic symptoms associated with pear allergy range from oral allergy syndrome to severe, anaphylactic reactions.

As the major pear allergen (Pyr c 1) is heat sensitive, baked or cooked pear can be consumed without danger for clinical reactions. In cases of pear allergy caused by Py r c 3 (nsLTP) avoidance is the therapeutic option of choice. If an anaphylactic reaction occurred, the prescription of an emergency kit is advised.

Strawberry

Sensitisation to strawberry was detected. Allergic symptoms associated with strawberry are usually mild, systemic reactions are rare.

Fra a 1 is a member of the PR-10 allergen family and is associated with mild forms of strawberry allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Fra a 1 and other members of the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. Usually Fra a 1 sensitisation is caused by a primary sensitisation against Bet v 1 from birch pollen. Fra a 1 is not stable towards heat and digestion. Fra a 3 is a member of the nsLTP allergen family and may cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between Fra a 3 and other members of the nsLTP family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Fra a 3 is stable towards heat and digestion.

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

Nuts and Legumes

Almond

Sensitisation to Almond was detected. Allergic symptoms associated with almond range from oral allergy syndrome to skin reactions and gastrointestinal symptoms. Severe allergic reactions to almond are rare.

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

Cashew

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

Ana o 2 and 3 are storage proteins associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between storage proteins from cashew 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. Ana o 2 & 3 are stable towards heat and digestion. Positive results were obtained for: Ana o 2, Ana o 3.

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

Green bean

Sensitisation to green bean was detected. Allergic symptoms associated with green bean range from oral allergy syndrome to anaphylaxis.

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

Hazelnut

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

Cor a 1.0401 is a member of the PR-10 allergen family and is associated with mild forms of hazelnut allergy e.g. oral allergy syndrome. In rare cases, mild systemic reactions occur. Severe anaphylactic reactions are very rare. The degree of cross-reactivity between Cor a 1.0401 and other members of the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. In most cases a Cor a 1.0401 sensitisation is caused by a primary sensitisation against Bet v 1 from birch pollen. Cor a 1.0401 is not stable towards heat and digestion.

Cor a 8 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between members of the nsLTP allergen family is high within botanically closely related species (e.g. stone fruit) and moderate between less closely related species. The importance of these cross-reactions has to be analysed on a clinical level. Cor a 8 is stable towards heat and digestion.

Cor a 9, 11 & 14 are storage proteins associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between storage proteins from hazelnut 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. Cor a 9, 11 & 14 are stable towards heat and digestion. Positive results were obtained for: Cor a 14.

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

Peanut

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

The peanut storage proteins Ara h 1,2,3 and 6 are associated with clinical reactions up to severe anaphylaxis. The degree of cross-reactivity between storage proteins from peanut 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. Ara h 1,2,3 & 6 are stable towards heat and digestion. Positive results were obtained for: Ara h 1, Ara h 2, Ara h 3, Ara h 6.

Ara h 8 is a member of the PR-10 family and is associated with mild forms of peanut allergy e.g. oral allergy syndrome. The degree of cross-reactivity between Ara h 8 and other members of the PR-10 allergen family is moderate to high. The importance of these cross-reactions has to be analysed on a clinical level. In most cases an Ara h 8 sensitisation is caused by a primary sensitisation against Bet v 1 from birch pollen. Ara h 8 is not stable towards heat and digestion

Ara h 9 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between members of the nsLTP allergen family is high within botanically closely related species (e.g. stone fruit) and moderate between less closely related species. The importance of these cross-reactions has to be analysed on a clinical level. Ara h 9 is stable towards heat and digestion.

Ara h 15 is an allergen from the Oleosin allergen family and is associated with severe forms of peanut allergy. Cross-reactions between different Oleosins have been described. The importance of these cross-reactions has to be analysed on a clinical level. Ara h 15 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).

Pecan

Sensitisation to pecan detected. Allergic symptoms associated with pecan range from oral allergy syndrome to anaphylaxis. Pecan strongly cross-reacts with walnut.

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

Pistachio

Sensitisation to pistachio was detected. Allergic symptoms associated with pistachio range from oral allergy syndrome to anaphylaxis.

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

Soy

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

Gly m 4 is a member of the PR-10 family and is associated with mild forms of soy allergy e.g. oral allergy syndrome, as well as severe reactions after the consumption of unprocessed soy products like soy milk. The degree of cross-reactivity between Gly m 4 and other members of the PR-10 allergen family is high. The importance of these cross-reactions has to be analysed on a clinical level. In most cases a Gly m 4 sensitisation is caused by a primary sensitisation against Bet v 1 from birch pollen. Products like soy milk contain high levels of unprocessed allergens.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Fermented soy products (e.g. soy sauce, miso) have lost allergenicity.

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 1, Jug r 2, Jug r 4, Jug r 6.

Jug r 3 is a member for the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between members of the nsLTP allergen family is high within botanically closely related species (e.g. stone fruit) and moderate between less closely related species. The importance of these cross-reactions has to be analysed on a clinical level. Jug r 3 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).

Spices

Mustard

Sensitisation to mustard seed was detected. Allergic symptoms associated with mustard seed range from oral allergy syndrome to anaphylaxis.

Sin a 1 is a storage protein (2S Albumin) associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between storage proteins from mustard seed 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. Sin a 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).

Vegetables

Carrot

Sensitisation to carrot was detected. Allergic symptoms associated with carrot range from oral allergy syndrome to anaphylaxis. Carrot allergy is mostly present in patients with birch or mugwort pollen sensitisation.

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

Celery

Sensitisation to celery was detected. Allergic symptoms associated with celery range from oral allergy syndrome to anaphylaxis. Celery allergy is caused by sensitisation to pollen (from birch and mugwort), which causes cross-reactions to celery. Severe reactions to celery are often linked to a primary mugwort pollen Sensitisation.

Api g 2 is a member of the nsLTP allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-

reactivity between Api g 2 and other members of the nsLTP family is high within botanically closely related species (e.g. stone fruit). The importance of these cross-reactions has to be analysed on a clinical level. Api g 2 is stable towards heat and digestion. Api g 2 is located in celery stalks, in contrast to Api g 6.

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

Garlic

Sensitisation to garlic was detected. Allergic symptoms associated with garlic range from oral allergy syndrome to anaphylaxis. Allergy to garlic is very rare. Heat treatment does not always inactivate the responsible allergen.

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

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.

Tomato

Sensitisation to tomato was detected. Allergic symptoms associated with tomato allergy range from oral allergy syndrome to anaphylaxis. Many tomato allergic patients react due to cross-reactions from PR-10, Profilin or nsLTP allergens.

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

Milk and Egg

Camel's milk

Sensitisation to camel's milk was detected. Allergic symptoms associated with camel's milk Include severe, anaphylactic reactions, as well as gastrointestinal symptoms and worsening of atopic dermatitis. Most children can be expected to outgrow their camel's milk allergy. Camel's milk allergy is a very rare disease, and often camel's milk is a viable alternative for allergics with allergy to cow's and other milk species.

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

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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 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.

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Egg

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

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.

Gal d 5 is a heat labile allergen from hen's egg. The degree of cross-reactivity between Gal d 5 and other avian Serum Albumins is high but low with serum albumins from mammals. The importance of these cross-reactions has to be analysed on a clinical level. Serum Albumins are not stable towards heat and digestion. Gal d 5 is also implicated in the bird-egg syndrome.

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 sheep'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).

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

Poultry

Sensitisation to poultry was detected. Allergic symptoms associated with poultry range from oral allergy syndrome to gastrointestinal complaints, urticaria and angioedema. Severe anaphylaxis with cardiovascular symptoms is rare. Chicken and turkey meat are highly cross-reactive and responsible for most poultry related reactions, while duck and goose meat causes milder or no symptoms.

Gal d 5 is a heat labile allergen from hen's egg. The degree of cross-reactivity between Gal d 5 and other avian Serum Albumins is high but low with serum albumins from mammals. The importance of these cross-reactions has to be analysed on a clinical level. Serum Albumins are not stable towards heat and digestion. Gal d 5 is also implicated in the bird-egg syndrome.

Include extensive patient training on avoidance measures for mild reactions and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). Heat-treatment, or other approaches such as freeze-drying, can decrease the allergenicity of poultry.

Red Meat

Horse-meat

Sensitisation to horse-meat was detected. Allergy to horse meat is rare, with symptoms presumably ranging from gastro-intestinal complaints to anaphylaxis. Horse meat allergy may result from primary respiratory sensitisation to Can f 3 (dog Serum Albumin) or other Serum Albumins. A potential role of alpha-Gal in delayed horse-meat allergy seems possible, but hasn't been demonstrated

Equ c 3 is a member of the Serum Albumin allergen family (SA). The degree of cross-reactivity between members of this family is very high. Aside from inhalative reactions, Equ c 3 could elicit symptoms in horse meat or other red meat allergic patients.

Include extensive patient training on avoidance measures for mild reactions and the prescription of an emergency kit (including adrenalin autoinjector for severe cases) for severe cases. Heat-treatment, or other approaches such as freeze-drying, can decrease the allergenicity of horse meat in Serum Albumin associated horse meat allergy.

Lamb-meat

Sensitisation to lamb was detected. Allergic symptoms associated with lamb range from gastrointestinal symptoms to anaphylaxis. Lamb allergy can be caused via sensitisation to Serum Albumin, 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

Include extensive patient training on avoidance measures for mild reactions and the prescription of an emergency kit (including adrenalin autoinjector for severe cases) for severe cases. Heat-treatment, or other approaches such as freeze-drying, can decrease the allergenicity of lamb in serum albumin associated lamb allergy.

Pork

Sensitisation to pork was detected. Allergic symptoms associated with pork range from gastro-intestinal symptoms to anaphylaxis. Pork allergy can be caused via Sensitisation to Serum Albumin, 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. Inhalative Sensitisation to Serum Albumin from cat (Fel d 2) can cause the pork-cat syndrome via cross-reaction.

Sus d 1 is a heat-labile allergen from pork. It shows a high degree of cross-reactivity with other Serum Albumins from mammals (e.g. Fel d 2 from cat). The importance of these cross-reactions has to be analysed on a clinical level. Serum albumins are not stable towards heat and digestion.

Include extensive patient training on avoidance measures for mild reactions and the prescription of an emergency kit (including adrenalin autoinjector for severe cases) for severe cases. Heat-treatment, or other approaches such as freeze-drying, can decrease the allergenicity of pork in serum albumin-associated pork allergy.

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.

Parvalbumins are the major allergens from fish species. The degree of cross-reactivity between different Parvalbumins is high, but not absolute. Parvalbumins are resistant to heat and digestion. α -Parvalbumin from thornback ray has been described as hypoallergenic.

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. It is stable to heat and digestion. 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 crustaceans 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 crustaceans is very high.

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

Mussels

Sensitisation to mussels was detected. Allergic symptoms associated with mussels of various species 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 crustaceans is very high.

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

Pen m 2 is a member of the Arginine Kinase allergen family (AK) and can cause predominately mild reactions. The degree of cross-reactivity to other Arginine Kinases is very high (e.g. Der p 20 from house dust mite & Bla g 9 from cockroach). It is not stable to heat and digestion.

Pen m 3 is a member of the Myosin Light Chain allergen family (MLC). The degree of cross-reactivity between Pen m 3 and other members of the MLC allergen family is unknown, but probably high with other shrimp species and possible with chicken. It is stable to heat and presumably also to 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).

Other

Latex

Sensitisation to latex was detected. Allergic symptoms associated with latex allergy range from contact urticaria to anaphylaxis. In children with Spina bifida the most frequent manifestation is urticaria and angioedema. In latex allergic health care workers the most common symptoms are of a respiratory nature and local skin reactions.

Hev b 5 is a structural protein whose biological function is unknown. It is the main allergen in different risk groups and is recognized by 92% of health care workers and 56% of patients with Spina bifida. For unknown reasons its prevalence varies from region to region.

Processing of Hev b 6 (Pro-hevein) leads to allergenic fragments, among them Hev b 6.02 (Hevein). Its prevalence is greater in health care professionals than in patients with Spina bifida. Hev b 6 may be involved in latex-associated food allergy.

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). The use of replacement Replacement by latex-free products (e.g. nitrile gloves) is also strongly advised.

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 ALEX 2 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.