TEST METHOD
ALEX³

QR-CODE
03ECA0F1

PATIENT CODE
ALEXIQC BIORAD LOT:22680, Exp: 31.07.28

PATIENT NAME
ALEX IQC

DATE OF BIRTH

ADDITIONAL INFORMATION

DOCTOR INFORMATION

ANALYSIS DATE
05/03/2026

PRINT DATE
06/03/2026

ALLERGENS
300

Total IgE result: 810 kU/L

Reference range total IgE
Adults < 100 kU/L

LAB REPORT

Summary of detectable sensitisations

ALEX ALLERGY XPLORER

POLLEN
Grass Pollen
Tree Pollen
Weed Pollen

MITES
House Dust Mites & Storage Mites

DANDER & EPITHELIA
Farm Animals
Pets

MICROORGANISMS
Fungal Spores & Yeast

INSECTS
Cockroach

VENOMS
Ant, Bee, Wasp, Hornet

PLANT-BASED FOOD
Fruits
Grains
Legumes
Nuts & Seeds
Spices
Vegetables

ANIMAL-BASED FOOD
Egg
Fish & Seafood
Meat
Milk

OTHERS
CCD
Ficus
Latex
Parasite
Red meat

Measured IgE concentration ranges per allergen group

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

TECHNOLOGY BY MADX MACRO ARRAY DIAGNOSTICS

Summary of all results. Please note that no components were added to the respective extracts (i.e., the extracts were not spiked).

Pollen

Grass Pollen

Name	E/M	Allergen	Allergen family	kU_A/L
Bermuda grass	⊙	Cyn d 1	β-Expansin	7.42
Bahia grass	⁘	Pas n		1.82
Timothy grass	⊙	Phl p 1	β-Expansin	6.75
	⊙	Phl p 2	Expansin	0.82
	⊙	Phl p 5.0101	Grass Group 5/6	4.79
	⊙	Phl p 6	Grass Group 5/6	0.79
	⊙	Phl p 7	Polcalcin	8.57
	⊙	Phl p 12	Profilin	0.26
Common reed	⁘	Phr c		< 0.10
Rye pollen	⁘	Sec c_pollen		3.07
Maize pollen	⊙	Zea m 1	β-Expansin	8.83

Tree Pollen

Name	E/M	Allergen	Allergen family	kU_A/L
Acacia	⁘	Aca m		< 0.10
Tree of heaven	⁘	Ail a		< 0.10
Alder	⊙	Aln g 1	PR-10	2.28
	⊙	Aln g 4	Polcalcin	16.33
Silver birch	⊙	Bet v 1	PR-10	2.63
	⊙	Bet v 6	Isoflavon Reductase	< 0.10
	⊙	Bet v 7	Cyclophilin	14.61
Paper mulberry	⁘	Bro pa		< 0.10
Sugi	⊙	Cry j 1	Pectate Lyase	3.20
Arizona cypress	⊙	Cup a 1	Pectate Lyase	0.81
Cypress	⁘	Cup s		< 0.10
Ash	⊙	Fra e 1	Ole e 1 Family	< 0.10
Walnut	⁘	Jug r_pollen		1.10
Mountain cedar	⁘	Jun a		< 0.10
Olive	⊙	Ole e 1	Ole e 1 Family	< 0.10
	⊙	Ole e 7	nsLTP	< 0.10
	⊙	Ole e 9	β-1,3-Glucanase	< 0.10
London plane tree	⊙	Pla a 1	Plant Invertase	< 0.10
	⊙	Pla a 2	Polygalacturonase	< 0.10
	⊙	Pla a 3	nsLTP	< 0.10
Oak	⊙	Que a 1	PR-10	6.39

Weed Pollen

Name	E/M	Allergen	Allergen family	kU_A/L
Pigweed	⁘	Ama r		< 0.10
Ragweed	⁘	Amb a		1.50
	◉	Amb a 1	Pectate Lyase	2.19
	◉	Amb a 4	Plant Defensin	0.12
Mugwort	⁘	Art v		< 0.10
	◉	Art v 1	Plant Defensin	< 0.10
	◉	Art v 3	nsLTP	1.84
Hemp	⁘	Can s		0.15
	◉	Can s 3	nsLTP	0.27
Lamb's quarter	⁘	Che a		< 0.10
	◉	Che a 1	Ole e 1 Family	< 0.10
Wall pellitory	⁘	Par j		< 0.10
	◉	Par j 2	nsLTP	1.97
Ribwort	◉	Pla l 1	Ole e 1 Family	0.43
Russian thistle	⁘	Sal k		0.25
	◉	Sal k 1	Pectin Methylesterase	0.71
	◉	Sal k 5	Ole e 1 Family	< 0.10

Mites

House Dust Mites & Storage Mites

Name	E/M	Allergen	Allergen family	kU_A/L
Acarus siro	⁘	Aca s		0.31
Blomia tropicalis	◉	Blo t 2	NPC2 Family	< 0.10
	◉	Blo t 5	Mite Group 5/21	0.19
	◉	Blo t 10	Tropomyosin	0.43
	◉	Blo t 21	Mite Group 5/21	< 0.10
American house dust mite	◉	Der f 1	Cysteine Protease	2.63
	◉	Der f 2	NPC2 Family	9.72
	◉	Der f 15	Chitinase	0.30
	◉	Der f 18	Chitinase-like Protein	0.26
European house dust mite	◉	Der p 1	Cysteine Protease	8.14
	◉	Der p 2	NPC2 Family	9.16
	◉	Der p 5	Mite Group 5/21	4.04
	◉	Der p 7	Mite Group 7	1.01
	◉	Der p 10	Tropomyosin	0.44
	◉	Der p 20	Arginine Kinase	7.80
	◉	Der p 21	Mite Group 5/21	1.77
	◉	Der p 23	Peritrophin-like Protein Domain	4.57
Glycyphagus domesticus	◉	Gly d 2	NPC2 Family	0.86

Name	E/M	Allergen	Allergen family	kU_A/L
Lepidoglyphus destructor	⦿	Lep d 2	NPC2 Family	0.85
Tyrophagus putrescentiae	⁘	Tyr p		0.38
	⦿	Tyr p 2	NPC2 Family	< 0.10
	⦿	Tyr p 10	Tropomyosin	0.53

Dander & Epithelia

Farm Animals

Name	E/M	Allergen	Allergen family	kU_A/L
Cattle	⦿	Bos d 2	Lipocalin	< 0.10
Goat	⁘	Cap h_epithelia		2.32
Horse	⦿	Equ c 1	Lipocalin	5.31
	⦿	Equ c 3	Serum Albumin	1.12
	⦿	Equ c 4	Latherin	0.10
Pig	⁘	Sus d_epithelia		2.00

Pets

Name	E/M	Allergen	Allergen family	kU_A/L
Dog	⦿	Can f Fel d 1 like	Uteroglobin	10.71
Dog urine (incl. Can f 5)	⁘	Can f_male urine		8.68
Dog	⦿	Can f 1	Lipocalin	9.28
	⦿	Can f 2	Lipocalin	8.28
	⦿	Can f 3	Serum Albumin	13.55
	⦿	Can f 4	Lipocalin	9.88
	⦿	Can f 6	Lipocalin	10.53
Guinea pig	⦿	Cav p 1	Lipocalin	< 0.10
Cat	⦿	Fel d 1	Uteroglobin	10.88
	⦿	Fel d 2	Serum Albumin	7.36
	⦿	Fel d 4	Lipocalin	4.80
	⦿	Fel d 7	Lipocalin	4.60
Golden hamster	⦿	Mes a 1	Lipocalin	1.19
Mouse	⦿	Mus m 1	Lipocalin	1.18
Rabbit	⦿	Ory c 1	Lipocalin	< 0.10
	⦿	Ory c 2	Lipocalin	< 0.10
	⦿	Ory c 3	Uteroglobin	< 0.10
Djungarian hamster	⦿	Phod s 1	Lipocalin	< 0.10
Rat	⦿	Rat n 1	Lipocalin	0.19

Microorganisms

Fungal Spores & Yeast

Name	E/M	Allergen	Allergen family	kU_A/L
Alternaria alternata	⦿	Alt a 1	Alt a 1 Family	25.19
	⦿	Alt a 6	Enolase	< 0.10
Aspergillus fumigatus	⦿	Asp f 1	Mitogillin Family	< 0.10
	⦿	Asp f 3	Peroxysomal Protein	2.10
	⦿	Asp f 4	Unknown	0.17
	⦿	Asp f 6	Mn Superoxide Dismutase	0.90
	⦿	Asp f 8	Ribosomal Protein P2	0.84
Cladosporium herbarum	⁘	Cla h		< 0.10
	⦿	Cla h 8	Mannitol Dehydrogenase	< 0.10
Malassezia sympodialis	⦿	Mala s 5	Unknown	3.59
	⦿	Mala s 6	Cyclophilin	13.60
	⦿	Mala s 11	Mn Superoxide Dismutase	3.57
	⦿	Mala s 13	Thioredoxin	10.15
Penicilium chrysogenum	⁘	Pen ch		< 0.10

Insects

Cockroach

Name	E/M	Allergen	Allergen family	kU_A/L
German cockroach	⦿	Bla g 1	Nitrile Specifier	33.53
	⦿	Bla g 2	Aspartic Protease	< 0.10
	⦿	Bla g 4	Lipocalin	< 0.10
	⦿	Bla g 5	Glutathione S-Transferase	< 0.10
	⦿	Bla g 9	Arginine Kinase	9.27
American cockroach	⁘	Per a		2.19
	⦿	Per a 6	Troponin C	0.49
	⦿	Per a 7	Tropomyosin	< 0.10

Venoms

Ant, Bee, Wasp, Hornet

Name	E/M	Allergen	Allergen family	kU_A/L
Honey bee	⁘	Api m		< 0.10
	⦿	Api m 1	Phospholipase A2	< 0.10
	⦿	Api m 2	Hyaluronidase	< 0.10
	⦿	Api m 10	Icarapin Variant 2	< 0.10
Bald-faced Hornet	⦿	Dol m 2	Hyaluronidase	< 0.10
	⦿	Dol m 5	Antigen 5	< 0.10
Paper wasp	⁘	Pol d		< 0.10
	⦿	Pol d 5	Antigen 5	< 0.10
Fire ant	⁘	Sol spp		< 0.10
Common wasp	⦿	Ves v 1	Phospholipase A1	< 0.10

Name	E/M	Allergen	Allergen family	kU$_A$/L
	⦿	Ves v 5	Antigen 5	< 0.10

Plant-Based Food

Fruits

Name	E/M	Allergen	Allergen family	kU$_A$/L
Kiwi	⦿	Act d 1	Cysteine Protease	< 0.10
	⦿	Act d 2	Thaumatin-like Protein	0.31
	⦿	Act d 5	Kiwellin	< 0.10
	⦿	Act d 10	nsLTP	1.57
Papaya	⁘	Car p		< 0.10
Coconut	⦿	Coc n 1	7/8S Globulin	< 0.10
Muskmelon	⦿	Cuc m 2	Profilin	0.75
Fig	⁘	Fic c		< 0.10
Strawberry	⦿	Fra a 3	nsLTP	1.77
Apple	⦿	Mal d 1	PR-10	2.02
	⦿	Mal d 3	nsLTP	3.40
Mango	⦿	Man i 1	Class 4 Chitinase	< 0.10
Banana	⦿	Mus a 2	Class 1 Chitinase	0.59
	⦿	Mus a 5	β-1,3-Glucanase	0.45
Avocado	⁘	Pers a		< 0.10
	⦿	Pers a 1	Class 1 Chitinase	< 0.10
Cherry	⦿	Pru av 3	nsLTP	2.98
Peach	⦿	Pru p 3	nsLTP	1.74
	⦿	Pru p 7	Gibberellin-regulated Protein	< 0.10
Pear	⁘	Pyr c		0.10
Grape	⦿	Vit v 1	nsLTP	5.20

Grains

Name	E/M	Allergen	Allergen family	kU$_A$/L
Oat	⁘	Ave s		1.26
Quinoa	⁘	Che q		< 0.10
Buckwheat	⁘	Fag e		< 0.10
	⦿	Fag e 2	2S Albumin	0.54
Barley	⁘	Hor v		< 0.10
Lupine seed	⁘	Lup a		< 0.10
Millet	⁘	Pan m		< 0.10
Cultivated rye	⁘	Sec c_flour		< 0.10
Wheat	⦿	Tri a aA_TI	α-Amylase Trypsin-Inhibitor	< 0.10
	⦿	Tri a 14	nsLTP	0.74
	⦿	Tri a 19	Ω-5-Gliadin	< 0.10

Name	E/M	Allergen	Allergen family	kU$_A$/L
	⦿	Tri a 36	Low Molecular Weight Glutenin	< 0.10
	⦿	Tri a 37	α-Purothionin	< 0.10
Spelt	⁘	Tri s		0.10
Maize	⁘	Zea m		< 0.10
	⦿	Zea m 14	nsLTP	2.98

Legumes

Name	E/M	Allergen	Allergen family	kU$_A$/L
Peanut	⦿	Ara h 1	7/8S Globulin	1.90
	⦿	Ara h 2	2S Albumin	1.80
	⦿	Ara h 3	11S Globulin	0.71
	⦿	Ara h 6	2S Albumin	0.55
	⦿	Ara h 8	PR-10	1.35
	⦿	Ara h 9	nsLTP	1.80
	⦿	Ara h 15	Oleosin	< 0.10
	⦿	Ara h 18	Cyclophilin	< 0.10
Chickpea	⁘	Cic a		0.11
Soy	⦿	Gly m 4	PR-10	0.50
	⦿	Gly m 5	7/8S Globulin	< 0.10
	⦿	Gly m 6	11S Globulin	0.14
	⦿	Gly m 8	2S Albumin	< 0.10
Lentil	⦿	Len c 1	7/8S Globulin	< 0.10
	⦿	Len c 3	nsLTP	0.12
Pea	⦿	Pis s 1	7/8S Globulin	< 0.10
	⦿	Pis s 2	7/8S Globulin	< 0.10
	⦿	Pis s 3	nsLTP	0.27

Nuts & Seeds

Name	E/M	Allergen	Allergen family	kU$_A$/L
Cashew	⦿	Ana o 1	7/8S Globulin	< 0.10
	⦿	Ana o 2	11S Globulin	0.61
	⦿	Ana o 3	2S Albumin	2.09
Brazil nut	⁘	Ber e		0.13
	⦿	Ber e 1	2S Albumin	0.30
Pecan	⁘	Car i		0.38
	⦿	Car i 1	2S Albumin	0.47
	⦿	Car i 2 (256-386)	7/8S Globulin	0.53
	⦿	Car i 4	11S Globulin	< 0.10
Hazelnut	⦿	Cor a 1.0401	PR-10	5.96
	⦿	Cor a 8	nsLTP	1.58
	⦿	Cor a 9	11S Globulin	0.31
	⦿	Cor a 11	7/8S Globulin	0.71

Name	E/M	Allergen	Allergen family	kU_A/L
	◉	Cor a 14	2S Albumin	0.48
Pumpkin seed	⁘	Cuc p		< 0.10
Sunflower seed	⁘	Hel a		< 0.10
	◉	Hel a 3	nsLTP	0.15
Walnut	◉	Jug r 1	2S Albumin	1.81
	◉	Jug r 2	7/8S Globulin	0.21
	◉	Jug r 3	nsLTP	1.63
	◉	Jug r 4	11S Globulin	0.19
	◉	Jug r 6	7/8S Globulin	< 0.10
Macadamia	⁘	Mac i		< 0.10
	◉	Mac i 1.0101 (28-76)	α-Hairpinin	< 0.10
Poppy seed	⁘	Pap s		< 0.10
	◉	Pap s 1.0101 (27-846)	α-Hairpinin	< 0.10
Pine nut	⁘	Pin p		< 0.10
	◉	Pin p 1	2S Albumin	< 0.10
Pistachio	◉	Pis v 1	2S Albumin	0.94
	◉	Pis v 2	11S Globulin	0.20
	◉	Pis v 3	7/8S Globulin	0.15
Almond	⁘	Pru du		< 0.10
	◉	Pru du 6	11S Globulin	< 0.10
Sesame	⁘	Ses i		0.11
	◉	Ses i 1	2S Albumin	< 0.10

Spices

Name	E/M	Allergen	Allergen family	kU_A/L
Mustard	⁘	Sin a		0.24
	◉	Sin a 1	2S Albumin	0.35

Vegetables

Name	E/M	Allergen	Allergen family	kU_A/L
Onion	⁘	All c		< 0.10
Garlic	⁘	All s		< 0.10
Celery	◉	Api g 1	PR-10	0.10
	◉	Api g 2	nsLTP	3.07
	◉	Api g 6	nsLTP	< 0.10
	◉	Api g 7	Plant Defensin	< 0.10
Potato	⁘	Sol t		< 0.10
Tomato	⁘	Sola l		< 0.10
	◉	Sola l 6	nsLTP	< 0.10

Animal-Based Food

Egg

Name	E/M	Allergen	Allergen family	kU_A/L
Egg white	⁘	Gal d_white		0.44
Egg yolk	⁘	Gal d_yolk		0.21
Egg white	⊙	Gal d 1	Ovomucoid	< 0.10
	⊙	Gal d 2	Ovalbumin	0.31
	⊙	Gal d 3	Ovotransferrin	0.56
	⊙	Gal d 4	Lysozyme C	< 0.10
Egg yolk	⊙	Gal d 5	Serum Albumin	0.48

Fish & Seafood

Name	E/M	Allergen	Allergen family	kU_A/L
Anisakis simplex	⊙	Ani s 1	Kunitz Serine Protease Inhibitor	< 0.10
	⊙	Ani s 3	Tropomyosin	0.30
Crab	⁘	Chi spp		0.24
Herring	⁘	Clu h		< 0.10
	⊙	Clu h 1	β-Parvalbumin	1.87
Brown shrimp	⊙	Cra c 6	Troponin C	< 0.10
Carp	⊙	Cyp c 1	β-Parvalbumin	2.31
	⊙	Cyp c 2	Enolase	< 0.10
Atlantic cod	⊙	Gad m 1	β-Parvalbumin	2.06
Lobster	⁘	Hom g		0.43
Shrimp	⁘	Lit spp		< 0.10
Whiteleg shrimp	⊙	Lit v 7	Hemocyanin	0.12
Squid	⁘	Lol spp		< 0.10
Giant freshwater prawn	⊙	Mac r 1	Tropomyosin	0.15
	⊙	Mac r 2	Arginine Kinase	< 0.10
Northern prawn	⁘	Pan b		< 0.10
Black tiger shrimp	⊙	Pen m 1	Tropomyosin	0.13
	⊙	Pen m 2	Arginine Kinase	4.24
	⊙	Pen m 3	Myosin Light Chain	0.93
	⊙	Pen m 4	Sarcoplasmic Calcium-binding Protein	< 0.10
Thornback ray	⁘	Raj c		< 0.10
	⊙	Raj c Parvalbumin	α-Parvalbumin	< 0.10
Venus clam	⁘	Rud spp		0.16
Salmon	⁘	Sal s		0.18
	⊙	Sal s 1	β-Parvalbumin	1.31
	⊙	Sal s 6	Collagen	< 0.10
Atlantic mackerel	⁘	Sco s		0.11
	⊙	Sco s 1	β-Parvalbumin	3.92

Name	E/M	Allergen	Allergen family	kU_A/L
Tuna	⦿	Thu a 1	β-Parvalbumin	2.90
Swordfish	⦿	Xip g 1	β-Parvalbumin	2.10

Meat

Name	E/M	Allergen	Allergen family	kU_A/L
House cricket	⁘	Ach d		< 0.10
Beef	⁘	Bos d_meat		< 0.10
	⦿	Bos d 6	Serum Albumin	0.33
Horse	⁘	Equ c_meat		< 0.10
Chicken	⁘	Gal d_meat		< 0.10
	⦿	Gal d 7	Myosin Light Chain	< 0.10
Migratory locust	⁘	Loc m		2.27
Turkey	⁘	Mel g		1.48
Rabbit	⁘	Ory c_meat		< 0.10
Lamb	⁘	Ovi a_meat		1.55
Pork	⦿	Sus d 1	Serum Albumin	3.78
Mealworm	⁘	Ten m		0.40

Milk

Name	E/M	Allergen	Allergen family	kU_A/L
Cow's milk	⁘	Bos d_milk		1.16
	⦿	Bos d 4	α-Lactalbumin	0.34
	⦿	Bos d 5	β-Lactoglobulin	< 0.10
	⦿	Bos d 8	Casein	2.44
	⦿	Bos d 9	α-S1 Casein	1.11
	⦿	Bos d 10	α-S2 Casein	0.52
	⦿	Bos d 11	β-Casein	1.71
	⦿	Bos d 12	κ-Casein	0.43
Camel's milk	⁘	Cam d		0.14
Goat's milk	⁘	Cap h_milk		0.95
Mare's milk	⁘	Equ c_milk		< 0.10
Sheep's milk	⁘	Ovi a_milk		0.47

Others

CCD

Name	E/M	Allergen	Allergen family	kU_A/L
Hom s Lactoferrin	⦿	Hom s LF	CCD	< 0.10

Ficus

Name	E/M	Allergen	Allergen family	kU_A/L
Weeping fig		Fic b		< 0.10

Latex

Name	E/M	Allergen	Allergen family	kU_A/L
Latex		Hev b 1	Rubber Elongation Factor	< 0.10
		Hev b 3	Small Rubber Particle Protein	< 0.10
		Hev b 5	Unknown	0.91
		Hev b 6.02	Pro-Hevein	0.22
		Hev b 11	Class 1 Chitinase	< 0.10

Parasite

Name	E/M	Allergen	Allergen family	kU_A/L
Pigeon tick		Arg r 1	Lipocalin	< 0.10

Red meat

Name	E/M	Allergen	Allergen family	kU_A/L
Red meat		Alpha-GAL	α-Gal	< 0.10

Information to cross-reactive allergens

PR-10

PR-10 allergens show a high degree of cross-reactivity.
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 Fagales tree pollen explains IgE cross-reactivity between pollen from hazel, alder, beech, oak and hornbeam.
PR-10 nutritive:
PR-10 allergens in raw fruits, nuts, vegetable and legumes can induce oral allergy syndrome and sometimes severe allergic reactions in sensitised individuals, if a high amount of the respective allergen is consumed. PR-10 allergens are not stable to processing.

Name	E/M	Allergen	Allergen family	kU_A/L
Alder		Aln g 1	PR-10	2.28
Celery		Api g 1	PR-10	0.10
Peanut		Ara h 8	PR-10	1.35
Silver birch		Bet v 1	PR-10	2.63
Hazelnut		Cor a 1.0401	PR-10	5.96
Soy		Gly m 4	PR-10	0.50
Apple		Mal d 1	PR-10	2.02
Oak		Que a 1	PR-10	6.39

nsLTP

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Kiwi	⦿	Act d 10	nsLTP	1.57
Celery	⦿	Api g 2	nsLTP	3.07
	⦿	Api g 6	nsLTP	< 0.10
Peanut	⦿	Ara h 9	nsLTP	1.80
Mugwort	⦿	Art v 3	nsLTP	1.84
Hemp	⦿	Can s 3	nsLTP	0.27
Hazelnut	⦿	Cor a 8	nsLTP	1.58
Strawberry	⦿	Fra a 3	nsLTP	1.77
Sunflower seed	⦿	Hel a 3	nsLTP	0.15
Walnut	⦿	Jug r 3	nsLTP	1.63
Lentil	⦿	Len c 3	nsLTP	0.12
Apple	⦿	Mal d 3	nsLTP	3.40
Olive	⦿	Ole e 7	nsLTP	< 0.10
Wall pellitory	⦿	Par j 2	nsLTP	1.97
Pea	⦿	Pis s 3	nsLTP	0.27
London plane tree	⦿	Pla a 3	nsLTP	< 0.10
Cherry	⦿	Pru av 3	nsLTP	2.98
Peach	⦿	Pru p 3	nsLTP	1.74
Tomato	⦿	Sola l 6	nsLTP	< 0.10
Wheat	⦿	Tri a 14	nsLTP	0.74
Grape	⦿	Vit v 1	nsLTP	5.20
Maize	⦿	Zea m 14	nsLTP	2.98

Storage Proteins

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Cashew	⦿	Ana o 1	7/8S Globulin	< 0.10
	⦿	Ana o 2	11S Globulin	0.61
	⦿	Ana o 3	2S Albumin	2.09
Peanut	⦿	Ara h 1	7/8S Globulin	1.90
	⦿	Ara h 2	2S Albumin	1.80
	⦿	Ara h 3	11S Globulin	0.71
	⦿	Ara h 6	2S Albumin	0.55
	⦿	Ara h 15	Oleosin	< 0.10
Brazil nut	⦿	Ber e 1	2S Albumin	0.30
Pecan	⦿	Car i 1	2S Albumin	0.47
	⦿	Car i 2 (256-386)	7/8S Globulin	0.53
	⦿	Car i 4	11S Globulin	< 0.10
Coconut	⦿	Coc n 1	7/8S Globulin	< 0.10
Hazelnut	⦿	Cor a 9	11S Globulin	0.31
	⦿	Cor a 11	7/8S Globulin	0.71
	⦿	Cor a 14	2S Albumin	0.48

Name	E/M	Allergen	Allergen family	kU_A/L
Buckwheat	⊙	Fag e 2	2S Albumin	0.54
Soy	⊙	Gly m 5	7/8S Globulin	< 0.10
	⊙	Gly m 6	11S Globulin	0.14
	⊙	Gly m 8	2S Albumin	< 0.10
Walnut	⊙	Jug r 1	2S Albumin	1.81
	⊙	Jug r 2	7/8S Globulin	0.21
	⊙	Jug r 4	11S Globulin	0.19
	⊙	Jug r 6	7/8S Globulin	< 0.10
Lentil	⊙	Len c 1	7/8S Globulin	< 0.10
Macadamia	⊙	Mac i 1.0101 (28-76)	α-Hairpinin	< 0.10
Poppy seed	⊙	Pap s 1.0101 (27-846)	α-Hairpinin	< 0.10
Pine nut	⊙	Pin p 1	2S Albumin	< 0.10
Pea	⊙	Pis s 1	7/8S Globulin	< 0.10
	⊙	Pis s 2	7/8S Globulin	< 0.10
Pistachio	⊙	Pis v 1	2S Albumin	0.94
	⊙	Pis v 2	11S Globulin	0.20
	⊙	Pis v 3	7/8S Globulin	0.15
Almond	⊙	Pru du 6	11S Globulin	< 0.10
Sesame	⊙	Ses i 1	2S Albumin	< 0.10
Mustard	⊙	Sin a 1	2S Albumin	0.35

Lipocalin

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Pigeon tick	⊙	Arg r 1	Lipocalin	< 0.10
German cockroach	⊙	Bla g 4	Lipocalin	< 0.10
Cattle	⊙	Bos d 2	Lipocalin	< 0.10
Dog	⊙	Can f 1	Lipocalin	9.28
	⊙	Can f 2	Lipocalin	8.28
	⊙	Can f 4	Lipocalin	9.88
	⊙	Can f 6	Lipocalin	10.53
Guinea pig	⊙	Cav p 1	Lipocalin	< 0.10
Horse	⊙	Equ c 1	Lipocalin	5.31
Cat	⊙	Fel d 4	Lipocalin	4.80
	⊙	Fel d 7	Lipocalin	4.60
Golden hamster	⊙	Mes a 1	Lipocalin	1.19
Mouse	⊙	Mus m 1	Lipocalin	1.18
Rabbit	⊙	Ory c 1	Lipocalin	< 0.10
	⊙	Ory c 2	Lipocalin	< 0.10
Djungarian hamster	⊙	Phod s 1	Lipocalin	< 0.10
Rat	⊙	Rat n 1	Lipocalin	0.19

Profilin

Profilins show a very high degree of cross-reactivity.
Depending on the population, up to 50% of pollen allergics are sensitised to profilin (higher rate in Mediterranean countries, lower rate in Northern Europe). The sensitisation to profilin can cause inhalative symptoms. Up to 50% of profilin sensitised patients may have food allergy - oral allergy syndrome in most cases. Raw tomato, melon, watermelon, and citrus fruits are typically associated with profilin. Profilins are not stable to processing.

Name	E/M	Allergen	Allergen family	kU_A/L
Muskmelon	⊙	Cuc m 2	Profilin	0.75
Timothy grass	⊙	Phl p 12	Profilin	0.26

Parvalbumin

Parvalbumins show a very high degree of cross-reactivity.
Clinical cross-reactivity between different fish species is explained by highly conserved parvalbumin IgE epitopes. Parvalbumins are food and respiratory allergens and can cause severe allergic reactions. Parvalbumins are stable to processing.

Name	E/M	Allergen	Allergen family	kU_A/L
Herring	⊙	Clu h 1	β-Parvalbumin	1.87
Carp	⊙	Cyp c 1	β-Parvalbumin	2.31
Atlantic cod	⊙	Gad m 1	β-Parvalbumin	2.06
Thornback ray	⊙	Raj c Parvalbumin	α-Parvalbumin	< 0.10
Salmon	⊙	Sal s 1	β-Parvalbumin	1.31
Atlantic mackerel	⊙	Sco s 1	β-Parvalbumin	3.92
Tuna	⊙	Thu a 1	β-Parvalbumin	2.90
Swordfish	⊙	Xip g 1	β-Parvalbumin	2.10

Serum Albumin

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Beef	⊙	Bos d 6	Serum Albumin	0.33
Dog	⊙	Can f 3	Serum Albumin	13.55
Horse	⊙	Equ c 3	Serum Albumin	1.12
Cat	⊙	Fel d 2	Serum Albumin	7.36
Egg yolk	⊙	Gal d 5	Serum Albumin	0.48
Pork	⊙	Sus d 1	Serum Albumin	3.78

Polcalcin

Polcalcins show a very high degree of cross-reactivity.
Polcalcins are calcium binding proteins only expressed in mature pollen. Positive sIgE results against polcalcines can be considered a marker of polysensitisation with unknown clinical relevance for respiratory symptoms.

Name	E/M	Allergen	Allergen family	kU_A/L
Alder	⊙	Aln g 4	Polcalcin	16.33
Timothy grass	⊙	Phl p 7	Polcalcin	8.57

Tropomyosin

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Anisakis simplex	⦿	Ani s 3	Tropomyosin	0.30
Blomia tropicalis	⦿	Blo t 10	Tropomyosin	0.43
European house dust mite	⦿	Der p 10	Tropomyosin	0.44
Giant freshwater prawn	⦿	Mac r 1	Tropomyosin	0.15
Black tiger shrimp	⦿	Pen m 1	Tropomyosin	0.13
American cockroach	⦿	Per a 7	Tropomyosin	< 0.10
Tyrophagus putrescentiae	⦿	Tyr p 10	Tropomyosin	0.53

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Blomia tropicalis	⦿	Blo t 2	NPC2 Family	< 0.10
American house dust mite	⦿	Der f 2	NPC2 Family	9.72
European house dust mite	⦿	Der p 2	NPC2 Family	9.16
Glycyphagus domesticus	⦿	Gly d 2	NPC2 Family	0.86
Lepidoglyphus destructor	⦿	Lep d 2	NPC2 Family	0.85
Tyrophagus putrescentiae	⦿	Tyr p 2	NPC2 Family	< 0.10

Ole e 1

Ole e 1 family allergens show a high degree of cross-reactivity within plant family borders.
The major olive pollen allergen, Ole e 1, represents the prototype of all Ole e 1 family allergens and is the primary sensitiser in regions with olive pollen exposure. Further Ole e 1 related allergens were identified in other trees from the Oleaceae family (ash, lilac, privet). There are further Ole e 1 family members present in grass- and weed pollen.

Name	E/M	Allergen	Allergen family	kU_A/L
Lamb's quarter	⦿	Che a 1	Ole e 1 Family	< 0.10
Ash	⦿	Fra e 1	Ole e 1 Family	< 0.10
Olive	⦿	Ole e 1	Ole e 1 Family	< 0.10
Ribwort	⦿	Pla l 1	Ole e 1 Family	0.43
Russian thistle	⦿	Sal k 5	Ole e 1 Family	< 0.10

Arginine Kinase

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

Name	E/M	Allergen	Allergen family	kU_A/L
German cockroach	⦿	Bla g 9	Arginine Kinase	9.27
European house dust mite	⦿	Der p 20	Arginine Kinase	7.80
Giant freshwater prawn	⦿	Mac r 2	Arginine Kinase	< 0.10
Black tiger shrimp	⦿	Pen m 2	Arginine Kinase	4.24

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.

Name	E/M	Allergen	Allergen family	kU_A/L
Dog	⦿	Can f Fel d 1 like	Uteroglobin	10.71

Name	E/M	Allergen	Allergen family	kU_A/L	
Cat	⦿	Fel d 1	Uteroglobin		10.88
Rabbit	⦿	Ory c 3	Uteroglobin		< 0.10

β-Expansin

β-Expansins show limited cross-reactivity between temperate and subtropical grasses, but high cross-reactivity within these subgroups.
Grass pollen β-expansins are a family of major grass pollen allergens and are classified as 'group 1' grass pollen allergens. A positive test result to grass pollen β-expansin confirms genuine sensitisation. Group 1 allergens are present in both temperate grasses (e.g., Timothy, Orchard, Perennial rye, Bluegrass, Sweet vernal) and subtropical grasses (e.g., Bahia, Johnson and Bermuda). Phl p 1 is useful for diagnosis and therapy of grass pollen allergy in temperate regions. Bermuda and Bahia grasses belong to distinct subfamilies of subtropical grasses, with Cyn d 1 serving as a marker for Bermuda grass sensitisation and Pas n extract for Bahia and Johnson grass. Although cross-reactivity between temperate and subtropical group 1 allergens can occur, species-specific epitopes exist and should be considered when choosing therapy.

Name	E/M	Allergen	Allergen family	kU_A/L	
Bermuda grass	⦿	Cyn d 1	β-Expansin		7.42
Timothy grass	⦿	Phl p 1	β-Expansin		6.75
Maize pollen	⦿	Zea m 1	β-Expansin		8.83

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INTERPRETATION SOFTWARE

RAVEN² analysis completed on 05.03.2026 15:43. It analysed a total of 300 parameters, of which 138 were positive.

Seasonal (Spring)

Symptoms indicative of allergies in spring time were either absent or not recorded in RAVEN².
Genuine sensitisation to arizona cypress and silver birch and IgE-reactivity to walnut pollen was detected, but symptoms were either absent or not recorded in RAVEN². Sensitisation to different cross-reactive families can lead to sensitisation to Oleaceae and other trees.
Sensitisation to arizona cypress, silver birch, ragweed, ribwort (plantain), russian thistle, timothy grass, wall pellitory, aspergillus fumigatus, dermatophagoides pteronyssinus, latex, malassezia sympodialis, brazil nut, buckwheat, cashew, hazelnut, kiwi, mustard, peach, peanut, pecan, pistachio and walnut are suspected to be the primary sources of cross-sensitisation to other Fagales and Cupressaceae, respectively.

Seasonal (Summer)

Symptoms indicative of allergies in summer were either absent or not recorded in RAVEN².
Genuine sensitisation to alternaria alternata, ragweed, ribwort (plantain), russian thistle, timothy grass and wall pellitory and IgE-reactivity to bahia grass and rye pollen was detected, but symptoms were either absent or not recorded in RAVEN². Sensitisation to different cross-reactive families can lead to sensitisation to other mould , weeds and Oleaceae and other trees.
Sensitisation to arizona cypress, silver birch, alternaria alternata, ragweed, ribwort (plantain), russian thistle, timothy grass, wall pellitory, aspergillus fumigatus, dermatophagoides pteronyssinus, latex, malassezia sympodialis, brazil nut, buckwheat, cashew, hazelnut, kiwi, mustard, peach, peanut, pecan, pistachio and walnut are suspected to be the primary sources of cross-sensitisation to other grasses, respectively.
Confirmation of absence of clinical reactivity to weeds might be advisable.

Perennial

Symptoms indicative of perennial allergies were either absent or not recorded in RAVEN².
Genuine sensitisation to aspergillus fumigatus, cat, dermatophagoides pteronyssinus, dog, german cockroach, golden hamster, latex and malassezia sympodialis and IgE-reactivity to acarus siro, american cockroach, goat, pig, mealworm, migratory locust and tyrophagus putrescentiae was detected, but symptoms were either absent or not recorded in RAVEN². Sensitisation to different cross-reactive families can lead to sensitisation to other mould and hemp.
Sensitisation to silver birch, timothy grass, aspergillus fumigatus, dermatophagoides pteronyssinus, german cockroach, malassezia sympodialis, black-tiger shrimp, peanut, cat, dog, golden hamster and cow's milk are suspected to be the primary sources of cross-sensitisation to other domestic mites, insects and animal dander, respectively.

Food

Symptoms indicative of food-related allergies were either absent or not recorded in RAVEN².
Genuine sensitisation to black-tiger shrimp, brazil nut, buckwheat, cashew, cow's milk, egg white, egg yolk, hazelnut, kiwi, mustard, peach, peanut, pecan, pistachio, tuna and walnut and IgE-reactivity to goat's milk, sheep's milk, lamb meat, lobster, oat and turkey meat was detected, but symptoms were either absent or not recorded in RAVEN². Sensitisation to different cross-reactive families can lead to sensitisation to other prawn/shrimp , tree nuts and hemp, insects, molluscs, parasites and spices.
Sensitisation to cat, dog, golden hamster, cow's milk, silver birch, timothy grass, aspergillus fumigatus, dermatophagoides pteronyssinus, german cockroach, malassezia sympodialis, black-tiger shrimp, peanut, arizona cypress, ragweed, ribwort (plantain), russian thistle, wall pellitory, latex, brazil nut, buckwheat, cashew, hazelnut, kiwi, mustard, peach, pecan, pistachio, walnut, egg yolk and tuna are suspected to be the primary sources of cross-sensitisation to other milk, meat, crab/lobster, cereals and seeds, fruits, peanut and legumes , fish and vegetables, respectively.
Confirmation of absence of clinical reactivity to tree nuts, cereals and seeds, fruits, vegetables and peanut and legumes might be advisable.

Contact allergens and insect venom

Symptoms indicative of allergies to insects- or arachnid venom were either absent or not recorded in RAVEN².

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 1.0401, Gly m 4, Mal d 1
- nsLTPs: Act d 10, Api g 2, Ara h 9, Art v 3, Cor a 8, Jug r 3, Mal d 3, Par j 2, Pru p 3, Tri a 14, Vit v 1, Zea m 14
- Profilins: Cuc m 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: 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, Ber e 1, Cor a 9, Cor a 11, Cor a 14, Fag e 2, Jug r 1, Pis v 1, Sin a 1
- Tropomyosins: Ani s 3, Blo t 10, Der p 10
- Lipocalins: Can f 1, Can f 2, Can f 4, Can f 6, Equ c 1, Fel d 4, Fel d 7, Mes a 1, Mus m 1
- Arginin Kinases: Bla g 9, Der p 20, Pen m 2

PR-10 Proteins

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

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

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

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)

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 rhinoconjunctivitis and/or allergic asthma.

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 Tropomyosin 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.

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.

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Tree Pollen

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 7 is a member of the Cyclophilin allergen family. The degree of cross-reactivity between Bet v 7 and plant/pollen Cyclophilins is high. The importance of these cross-reactions has to be analysed on a clinical level. Bet v 7 is encountered primarily through airborne exposure, making it possibly relevant in respiratory allergies. Testing for Bet v 7 is particularly valuable for identifying hidden sensitisations in patients who test negative for other major birch allergens like Bet v 1, 2, and 4 but continue to exhibit positive reactions to pollen extracts.
Que a 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 Que a 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. Que 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).

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 of 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 of 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).

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, Phl p 1 and Zea m 1 are members fo 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, Phl p 1, Zea m 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 a Grass Group 5/6 allergen has not been described in all grass pollen species. 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

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).

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.
Pla l 1 is a member of the Ole e 1 allergen family. The degree of cross-reactivity to Ole e 1 allergens from other plantain species is high, that to Ole e 1-like allergens from other plant families is low. Pla l 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).

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).

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 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.

Golden Hamster

Sensitisation to golden hamster was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma.
Mes a 1 is a member of the Lipocalin allergen family and can cause inhalative symptoms. The degree of cross-reactivity between Mes a 1 and other Lipocalins is low (even to djungarian hamster).
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.

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 rhinoconjunctivitis 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 rhinoconjunctivitis 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 rhinoconjunctivitis 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.

Pig

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

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. A. 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 fumigatus

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.
Asp f 8 is a member of the Ribosomal Protein P2 family and can cause inhalative symptoms. The degree of cross-reactivity with other members of this family is high (e.g. Alt a 5 from Alternaria and Cla h 5 from Cladosporium herbarum). 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 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 (AD) patients but rare in healthy individuals. Especially seborrheic skin sites (e.g. head, neck) are preferrable 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.
Mala s 13 is a member of the Thioredoxin allergen family. The degree of cross-reactivity with other members of this family is high for other Malassezia species and medium for many moulds (e.g different Aspergillus species).
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 f 15 is a member of the Chitinase Class III allergen family. The degree of cross-reactivity to other members of this family is high to its pendant in D. pteronyssinus, medium to its pendant in B. tropicalis and low with other mites.
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 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 allergen 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 storage mites was detected. Allergic symptoms associated with this allergen source range from allergic rhinoconjunctivitis to allergic asthma.
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 10 is a member of the Tropomyosin allergen family. The degree of cross-reactivity between Tyr p 10 and other Tropomyosins is high. Sensitisation to Tyr p 10 can be the cause for cross-reactions to shrimp and other seafood species (except fish). The importance of these cross-reactions has to be analysed on a clinical level.
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 6 is a member of the Troponin C protein family. The degree of cross-reactivity between Per a 6 and other members of this family is very high for related insects (e.g. other cockroaches, midges, mosquitos, flies) and medium for less related species like Crangon crangon (brown shrimp).
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 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).

Grains and Seeds

Buckwheat

Sensitisation to buckwheat was detected. Allergic symptoms associated with buckwheat range from oral allergy syndrome to anaphylactic reactions. Especially in Asia buckwheat is a major cause for anaphylactic reactions. A high prevalence of buckwheat sensitisation was reported from Northern Italy.
Fag e 2 is a storage protein (2S Albumin) associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between storage proteins from buckwheat 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. Fag e 2 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).

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).

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).

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.
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 a 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).

Banana

Sensitisation to Banana was detected. Allergic symptoms associated with banana range from oral allergy syndrome to anaphylaxis. Many reactions to banana are based on cross-reactions via Class I Chitinase, Isoflavon Reductase, nsLTP or Profilin allergen families.
Mus a 2, a major allergen found in bananas, is a member of the Class I Chitinase allergen family. Mus a 2 is primarily encountered through food exposure and has been identified as a significant allergen for banana-sensitised individuals. Mus a 2 plays a role in cross-reactivity, particularly for individuals with latex allergies, as both banana and latex share common protein structures (i.e. hevein-like domain). Mus a 2 also shares similarities with Chitinases found in other fruits and nuts, such as avocado and chestnut, which may explain the cross-sensitisation among these foods. Mus a 2 is stable towards heat and digestion.
Mus a 5, a major allergen found in bananas, is a member of the β 1,3-Glucanase allergen family. Mus a 5 is abundantly found in banana pulp and primarily encountered through food exposure. The inclusion of Mus a 5 in molecular allergy testing improves diagnostic accuracy by distinguishing true banana allergy from potential cross-reactivity with other allergens. Mus a 5 shares similarities with Glucanases found in rubber tree latex (Hev b 2) and olive pollen (Ole e 9), potentially contributing to cross-reactivity among allergen sources and playing a role in latex-pollen-fruit syndrome. Mus a 5 is labile towards heat and digestion.
Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Cherry

Sensitisation to cherry was detected. Allergic symptoms associated with cherry range from oral allergy syndrome to anaphylaxis. PR-10 proteins and nsLTP are the most common causes of cherry allergy.
Pru av 3 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 Pru av 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. Pru av 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).

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 2 is a member of the TLP allergen family. So far, the clinical importance of TLPs has not been completely understood. 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. 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).

Muskmelon

Sensitisation to muskmelon was detected. Allergic symptoms associated with muskmelon are usually mild, systemic reactions are rare.
Cuc m 2 is a member of the Profilin allergen family and is associated with mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Cuc m 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.
Include extensive patient training on avoidance measures for mild reactions and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Peach

Sensitisation to peach was detected. Allergic symptoms associated with peach 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.

Strawberry

Sensitisation to strawberry was detected. Allergic symptoms associated with strawberry are usually mild, systemic reactions are rare.
Fra a 3 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 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).

Nuts and Legumes

Brazil nut

Sensitisation to Brazil nut was detected. Allergic symptoms associated with Brazil nut range from oral allergy syndrome to anaphylaxis.
Ber e 1 is a storage protein (2S Albumin) associated with clinical reactions up to anaphylaxis. The degree of cross-reactivity between 2S albumins from Brazil nut and its related allergens from legumes, nuts and seeds is low. The importance of these cross-reactions has to be analysed on a clinical level. Ber e 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).

Cashew

Sensitisation to cashew was detected. Allergic symptoms associated with cashew range from oral allergy syndrome to severe anaphylactic reactions.
Ana o 1, 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).

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 9, Cor a 11, 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 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.
Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases).

Pecan

Sensitisation to pecan was detected. Allergic symptoms associated with pecan range from oral allergy syndrome to anaphylaxis. Pecan strongly cross-reacts with walnut.
Car i 1, 2 and 4 are storage proteins. The degree of cross-reactivity between pecan and walnut allergens is high. The importance of these cross-reactions has to be analysed on a clinical level. All pecan storage proteins are resistant to heat and digestion.
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.
The pistachio storage proteins Pis v 1,2 and 3 are associated with clinical reactions up to severe anaphylaxis. The degree of cross-reactivity between storage proteins from pistachio and storage proteins from legumes, nuts and seeds is low to moderate, except to Cashew. The importance of these cross-reactions has to be analysed on a clinical level. Pis v 1,2 & 3 are stable towards heat and digestion. Positive results were obtained for: Pis v 1.
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 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

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).

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 9-12 are members of the Casein allergen family. The degree of cross-reactivity from Caseins from different milk species is low (e.g. camel milk) to high (e.g. sheep milk). Caseins are stable to heat and digestion.
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 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 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).

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 cause milder or no symptoms.
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

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.
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.

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 Equ c 3 (Serum Albumin) or other Serum Albumins. A potential role of alpha-Gal in delayed horse-meat allergy seems possible, but hasn't been demonstrated.
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). 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 include mild to severe anaphylactic reactions after fish consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapours.
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. 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

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 vapours. 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).

Shrimp

Sensitisation to shrimp was detected. Allergic symptoms associated with shrimp include mild to severe anaphylactic reactions after shrimp consumption as well as respiratory/asthmatic reactions upon exposure to cooking vapours. The degree of cross-reactivity between crustaceans is very high.
Pen m 2 is a member of the Arginine Kinase allergen family 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).

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

ALEX³ – Number of tested allergen sources

Grass Pollen 6
Bahia grass, Bermuda grass, Common reed, Maize pollen, Rye pollen, Timothy grass

Tree Pollen 14
Acacia, Alder, Arizona cypress, Ash, Cypress, London plane tree, Mountain cedar, Oak, Olive, Paper mulberry, Silver birch, Sugi, Tree of heaven, Walnut

Weed Pollen 8
Hemp, Lamb's quarter, Mugwort, 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

Vegetables 5
Celery, Garlic, Onion, Potato, Tomato

Nuts & Seeds 13
Almond, Brazil nut, Cashew, Hazelnut, Macadamia, Pecan, Pine nut, Pistachio, Poppy seed, Pumpkin seed, Sesame, Sunflower seed, Walnut

Legumes 5
Chickpea, Lentil, Pea, Peanut, Soy

Grains 10
Barley, Buckwheat, Cultivated rye, Lupine seed, Maize, Millet, Oat, Quinoa, Spelt, Wheat

Spices 1
Mustard

Fruits 14
Apple, Avocado, Banana, Cherry, Coconut, Fig, Grape, Kiwi, Mango, Muskmelon, Papaya, Peach, Pear, Strawberry

Cockroach 2
American cockroach, German cockroach

Ant, Bee, Wasp, Hornet 5
Bald-faced Hornet, Common wasp, Fire ant, Honey bee, Paper wasp

Fungal Spores & Yeast 5
Alternaria alternata, Aspergillus fumigatus, 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 19
Anisakis simplex, Atlantic cod, Atlantic mackerel, Black tiger shrimp, Brown shrimp, Carp, Crab, Giant freshwater prawn, Herring, Lobster, Northern prawn, Salmon, Shrimp, Squid, Swordfish, Thornback ray, Tuna, Venus clam, Whiteleg shrimp

Meat 10
Beef, Chicken, Horse, House cricket, Lamb, Mealworm, Migratory locust, Pork, Rabbit, Turkey

Pets 9
Cat, Djungarian hamster, Dog, Dog urine (incl. Can f 5), Golden hamster, Guinea pig, Mouse, Rabbit, Rat

Farm Animals 4
Cattle, Goat, Horse, Pig

Others 5
Hom s Lactoferrin, Latex, Pigeon tick, Red meat, Weeping fig