Until
1 Orchard Street
W1H 6HJ

0207 637 9711

London Allergy Clinic

PATIENT CODE
AALL-110000

PATIENT NAME
Demo Report

SAMPLE CODE
03AAQ01

QR-CODE
03AAQ31A

ALLERGENS
300

TEST METHOD
ALEX³

DATE OF BIRTH
01/01/2000

DOCTOR INFORMATION

ANALYSIS DATE
21/11/2025

PRINT DATE
03/03/2026

ADDITIONAL INFORMATION

Total IgE result: 255 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

TECHNOLOGY BY MADX MACRO ARRAY DIAGNOSTICS

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

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	< 0.10
Bahia grass	⁘	Pas n		< 0.10
Timothy grass	⦿	Phl p 1	β-Expansin	< 0.10
	⦿	Phl p 2	Expansin	0.14
	⦿	Phl p 5.0101	Grass Group 5/6	< 0.10
	⦿	Phl p 6	Grass Group 5/6	< 0.10
	⦿	Phl p 7	Polcalcin	< 0.10
	⦿	Phl p 12	Profilin	6.15
Common reed	⁘	Phr c		< 0.10
Rye pollen	⁘	Sec c_pollen		< 0.10
Maize pollen	⦿	Zea m 1	β-Expansin	< 0.10

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	< 0.10
	⦿	Aln g 4	Polcalcin	0.13
Silver birch	⦿	Bet v 1	PR-10	2.76
	⦿	Bet v 6	Isoflavon Reductase	< 0.10
	⦿	Bet v 7	Cyclophilin	< 0.10
Paper mulberry	⁘	Bro pa		< 0.10
Sugi	⦿	Cry j 1	Pectate Lyase	0.16
Arizona cypress	⦿	Cup a 1	Pectate Lyase	< 0.10
Cypress	⁘	Cup s		0.21
Ash	⦿	Fra e 1	Ole e 1 Family	< 0.10
Walnut	⁘	Jug r_pollen		0.58
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	< 0.10

Weed Pollen

Name	E/M	Allergen	Allergen family	kU_A/L
Pigweed	⁘	Ama r		< 0.10
Ragweed	⁘	Amb a		0.49
	◉	Amb a 1	Pectate Lyase	0.24
	◉	Amb a 4	Plant Defensin	< 0.10
Mugwort	⁘	Art v		0.11
	◉	Art v 1	Plant Defensin	0.16
	◉	Art v 3	nsLTP	< 0.10
Hemp	⁘	Can s		< 0.10
	◉	Can s 3	nsLTP	< 0.10
Lamb's quarter	⁘	Che a		< 0.10
	◉	Che a 1	Ole e 1 Family	< 0.10
Wall pellitory	⁘	Par j		< 0.10
	◉	Par j 2	nsLTP	< 0.10
Ribwort	◉	Pla l 1	Ole e 1 Family	< 0.10
Russian thistle	⁘	Sal k		< 0.10
	◉	Sal k 1	Pectin Methylesterase	< 0.10
	◉	Sal k 5	Ole e 1 Family	0.11

Mites

House Dust Mites & Storage Mites

Name	E/M	Allergen	Allergen family	kU_A/L
Acarus siro	⁘	Aca s		0.30
Blomia tropicalis	◉	Blo t 2	NPC2 Family	< 0.10
	◉	Blo t 5	Mite Group 5/21	0.11
	◉	Blo t 10	Tropomyosin	6.62
	◉	Blo t 21	Mite Group 5/21	< 0.10
American house dust mite	◉	Der f 1	Cysteine Protease	2.31
	◉	Der f 2	NPC2 Family	< 0.10
	◉	Der f 15	Chitinase	< 0.10
	◉	Der f 18	Chitinase-like Protein	< 0.10
European house dust mite	◉	Der p 1	Cysteine Protease	29.64
	◉	Der p 2	NPC2 Family	< 0.10
	◉	Der p 5	Mite Group 5/21	< 0.10
	◉	Der p 7	Mite Group 7	0.18
	◉	Der p 10	Tropomyosin	5.51
	◉	Der p 20	Arginine Kinase	< 0.10
	◉	Der p 21	Mite Group 5/21	< 0.10
	◉	Der p 23	Peritrophin-like Protein Domain	18.28
Glycyphagus domesticus	◉	Gly d 2	NPC2 Family	< 0.10

Name	E/M	Allergen	Allergen family	kU_A/L
Lepidoglyphus destructor	⦿	Lep d 2	NPC2 Family	< 0.10
Tyrophagus putrescentiae	⁘	Tyr p		< 0.10
	⦿	Tyr p 2	NPC2 Family	< 0.10
	⦿	Tyr p 10	Tropomyosin	5.37

Dander & Epithelia

Farm Animals

Name	E/M	Allergen	Allergen family	kU_A/L
Cattle	⦿	Bos d 2	Lipocalin	< 0.10
Goat	⁘	Cap h_epithelia		0.26
Horse	⦿	Equ c 1	Lipocalin	0.11
	⦿	Equ c 3	Serum Albumin	0.19
	⦿	Equ c 4	Latherin	0.13
Pig	⁘	Sus d_epithelia		0.20

Pets

Name	E/M	Allergen	Allergen family	kU_A/L
Dog	⦿	Can f Fel d 1 like	Uteroglobin	0.40
Dog urine (incl. Can f 5)	⁘	Can f_male urine		3.19
Dog	⦿	Can f 1	Lipocalin	10.81
	⦿	Can f 2	Lipocalin	< 0.10
	⦿	Can f 3	Serum Albumin	0.23
	⦿	Can f 4	Lipocalin	0.11
	⦿	Can f 6	Lipocalin	1.41
Guinea pig	⦿	Cav p 1	Lipocalin	< 0.10
Cat	⦿	Fel d 1	Uteroglobin	16.84
	⦿	Fel d 2	Serum Albumin	0.13
	⦿	Fel d 4	Lipocalin	< 0.10
	⦿	Fel d 7	Lipocalin	3.15
Golden hamster	⦿	Mes a 1	Lipocalin	< 0.10
Mouse	⦿	Mus m 1	Lipocalin	< 0.10
Rabbit	⦿	Ory c 1	Lipocalin	0.18
	⦿	Ory c 2	Lipocalin	0.15
	⦿	Ory c 3	Uteroglobin	< 0.10
Djungarian hamster	⦿	Phod s 1	Lipocalin	< 0.10
Rat	⦿	Rat n 1	Lipocalin	< 0.10

Microorganisms

Fungal Spores & Yeast

Name	E/M	Allergen	Allergen family	kU$_A$/L
Alternaria alternata		Alt a 1	Alt a 1 Family	< 0.10
		Alt a 6	Enolase	< 0.10
Aspergillus fumigatus		Asp f 1	Mitogillin Family	< 0.10
		Asp f 3	Peroxysomal Protein	< 0.10
		Asp f 4	Unknown	0.16
		Asp f 6	Mn Superoxide Dismutase	< 0.10
		Asp f 8	Ribosomal Protein P2	< 0.10
Cladosporium herbarum		Cla h		< 0.10
		Cla h 8	Mannitol Dehydrogenase	< 0.10
Malassezia sympodialis		Mala s 5	Unknown	< 0.10
		Mala s 6	Cyclophilin	< 0.10
		Mala s 11	Mn Superoxide Dismutase	< 0.10
		Mala s 13	Thioredoxin	< 0.10
Penicilium chrysogenum		Pen ch		0.14

Insects

Cockroach

Name	E/M	Allergen	Allergen family	kU$_A$/L
German cockroach		Bla g 1	Nitrile Specifier	0.15
		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	< 0.10
American cockroach		Per a		< 0.10
		Per a 6	Troponin C	0.13
		Per a 7	Tropomyosin	5.08

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		0.55
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	3.79
	⦿	Act d 2	Thaumatin-like Protein	< 0.10
	⦿	Act d 5	Kiwellin	< 0.10
	⦿	Act d 10	nsLTP	< 0.10
Papaya	⁞⁞	Car p		< 0.10
Coconut	⦿	Coc n 1	7/8S Globulin	0.21
Muskmelon	⦿	Cuc m 2	Profilin	7.58
Fig	⁞⁞	Fic c		0.11
Strawberry	⦿	Fra a 3	nsLTP	< 0.10
Apple	⦿	Mal d 1	PR-10	< 0.10
	⦿	Mal d 3	nsLTP	0.10
Mango	⦿	Man i 1	Class 4 Chitinase	< 0.10
Banana	⦿	Mus a 2	Class 1 Chitinase	0.11
	⦿	Mus a 5	β-1,3-Glucanase	< 0.10
Avocado	⁞⁞	Pers a		< 0.10
	⦿	Pers a 1	Class 1 Chitinase	< 0.10
Cherry	⦿	Pru av 3	nsLTP	< 0.10
Peach	⦿	Pru p 3	nsLTP	< 0.10
	⦿	Pru p 7	Gibberellin-regulated Protein	< 0.10
Pear	⁞⁞	Pyr c		< 0.10
Grape	⦿	Vit v 1	nsLTP	< 0.10

Grains

Name	E/M	Allergen	Allergen family	kU$_A$/L
Oat	⁞⁞	Ave s		< 0.10
Quinoa	⁞⁞	Che q		0.27
Buckwheat	⁞⁞	Fag e		1.95
	⦿	Fag e 2	2S Albumin	1.23
Barley	⁞⁞	Hor v		0.20
Lupine seed	⁞⁞	Lup a		1.37
Millet	⁞⁞	Pan m		0.13
Cultivated rye	⁞⁞	Sec c_flour		0.37
Wheat	⦿	Tri a aA_TI	α-Amylase Trypsin-Inhibitor	0.35
	⦿	Tri a 14	nsLTP	0.22
	⦿	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	< 0.10

Legumes

Name	E/M	Allergen	Allergen family	kU_A/L
Peanut	⦿	Ara h 1	7/8S Globulin	3.63
	⦿	Ara h 2	2S Albumin	8.45
	⦿	Ara h 3	11S Globulin	3.73
	⦿	Ara h 6	2S Albumin	5.69
	⦿	Ara h 8	PR-10	< 0.10
	⦿	Ara h 9	nsLTP	< 0.10
	⦿	Ara h 15	Oleosin	< 0.10
	⦿	Ara h 18	Cyclophilin	< 0.10
Chickpea	⁘	Cic a		2.99
Soy	⦿	Gly m 4	PR-10	< 0.10
	⦿	Gly m 5	7/8S Globulin	4.72
	⦿	Gly m 6	11S Globulin	2.40
	⦿	Gly m 8	2S Albumin	10.23
Lentil	⦿	Len c 1	7/8S Globulin	2.64
	⦿	Len c 3	nsLTP	0.10
Pea	⦿	Pis s 1	7/8S Globulin	4.34
	⦿	Pis s 2	7/8S Globulin	1.32
	⦿	Pis s 3	nsLTP	< 0.10

Nuts & Seeds

Name	E/M	Allergen	Allergen family	kU_A/L
Cashew	⦿	Ana o 1	7/8S Globulin	0.32
	⦿	Ana o 2	11S Globulin	0.23
	⦿	Ana o 3	2S Albumin	14.57
Brazil nut	⁘	Ber e		0.28
	⦿	Ber e 1	2S Albumin	< 0.10
Pecan	⁘	Car i		4.22
	⦿	Car i 1	2S Albumin	4.30
	⦿	Car i 2 (256-386)	7/8S Globulin	9.79
	⦿	Car i 4	11S Globulin	1.94
Hazelnut	⦿	Cor a 1.0401	PR-10	7.97
	⦿	Cor a 8	nsLTP	< 0.10
	⦿	Cor a 9	11S Globulin	2.19
	⦿	Cor a 11	7/8S Globulin	2.90

Name	E/M	Allergen	Allergen family	kU_A/L
	◉	Cor a 14	2S Albumin	4.97
Pumpkin seed	⁘	Cuc p		< 0.10
Sunflower seed	⁘	Hel a		0.43
	◉	Hel a 3	nsLTP	< 0.10
Walnut	◉	Jug r 1	2S Albumin	0.97
	◉	Jug r 2	7/8S Globulin	6.64
	◉	Jug r 3	nsLTP	< 0.10
	◉	Jug r 4	11S Globulin	2.75
	◉	Jug r 6	7/8S Globulin	< 0.10
Macadamia	⁘	Mac i		2.21
	◉	Mac i 1.0101 (28-76)	α-Hairpinin	1.52
Poppy seed	⁘	Pap s		0.52
	◉	Pap s 1.0101 (27-846)	α-Hairpinin	0.96
Pine nut	⁘	Pin p		< 0.10
	◉	Pin p 1	2S Albumin	< 0.10
Pistachio	◉	Pis v 1	2S Albumin	8.49
	◉	Pis v 2	11S Globulin	1.80
	◉	Pis v 3	7/8S Globulin	2.35
Almond	⁘	Pru du		0.70
	◉	Pru du 6	11S Globulin	0.49
Sesame	⁘	Ses i		3.47
	◉	Ses i 1	2S Albumin	4.92

Spices

Name	E/M	Allergen	Allergen family	kU_A/L
Mustard	⁘	Sin a		1.99
	◉	Sin a 1	2S Albumin	0.65

Vegetables

Name	E/M	Allergen	Allergen family	kU_A/L
Onion	⁘	All c		< 0.10
Garlic	⁘	All s		0.15
Celery	◉	Api g 1	PR-10	< 0.10
	◉	Api g 2	nsLTP	< 0.10
	◉	Api g 6	nsLTP	0.39
	◉	Api g 7	Plant Defensin	< 0.10
Potato	⁘	Sol t		1.54
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		3.03
Egg yolk	⁘	Gal d_yolk		1.20
Egg white	⊙	Gal d 1	Ovomucoid	1.87
	⊙	Gal d 2	Ovalbumin	0.95
	⊙	Gal d 3	Ovotransferrin	2.78
	⊙	Gal d 4	Lysozyme C	0.87
Egg yolk	⊙	Gal d 5	Serum Albumin	1.84

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	6.18
Crab	⁘	Chi spp		6.70
Herring	⁘	Clu h		0.27
	⊙	Clu h 1	β-Parvalbumin	0.77
Brown shrimp	⊙	Cra c 6	Troponin C	< 0.10
Carp	⊙	Cyp c 1	β-Parvalbumin	0.38
	⊙	Cyp c 2	Enolase	0.51
Atlantic cod	⊙	Gad m 1	β-Parvalbumin	0.25
Lobster	⁘	Hom g		0.90
Shrimp	⁘	Lit spp		8.66
Whiteleg shrimp	⊙	Lit v 7	Hemocyanin	< 0.10
Squid	⁘	Lol spp		7.24
Giant freshwater prawn	⊙	Mac r 1	Tropomyosin	10.04
	⊙	Mac r 2	Arginine Kinase	< 0.10
Northern prawn	⁘	Pan b		6.03
Black tiger shrimp	⊙	Pen m 1	Tropomyosin	8.08
	⊙	Pen m 2	Arginine Kinase	< 0.10
	⊙	Pen m 3	Myosin Light Chain	< 0.10
	⊙	Pen m 4	Sarcoplasmic Calcium-binding Protein	< 0.10
Thornback ray	⁘	Raj c		< 0.10
	⊙	Raj c Parvalbumin	α-Parvalbumin	< 0.10
Venus clam	⁘	Rud spp		6.53
Salmon	⁘	Sal s		< 0.10
	⊙	Sal s 1	β-Parvalbumin	0.98
	⊙	Sal s 6	Collagen	< 0.10
Atlantic mackerel	⁘	Sco s		< 0.10
	⊙	Sco s 1	β-Parvalbumin	0.85

Name	E/M	Allergen	Allergen family	kU$_A$/L
Tuna	⦿	Thu a 1	β-Parvalbumin	0.62
Swordfish	⦿	Xip g 1	β-Parvalbumin	0.26

Meat

Name	E/M	Allergen	Allergen family	kU$_A$/L
House cricket	⁘	Ach d		4.34
Beef	⁘	Bos d_meat		0.15
	⦿	Bos d 6	Serum Albumin	1.59
Horse	⁘	Equ c_meat		< 0.10
Chicken	⁘	Gal d_meat		< 0.10
	⦿	Gal d 7	Myosin Light Chain	< 0.10
Migratory locust	⁘	Loc m		3.13
Turkey	⁘	Mel g		< 0.10
Rabbit	⁘	Ory c_meat		0.10
Lamb	⁘	Ovi a_meat		0.11
Pork	⦿	Sus d 1	Serum Albumin	1.40
Mealworm	⁘	Ten m		5.91

Milk

Name	E/M	Allergen	Allergen family	kU$_A$/L
Cow's milk	⁘	Bos d_milk		1.86
	⦿	Bos d 4	α-Lactalbumin	0.47
	⦿	Bos d 5	β-Lactoglobulin	0.26
	⦿	Bos d 8	Casein	1.00
	⦿	Bos d 9	α-S1 Casein	1.52
	⦿	Bos d 10	α-S2 Casein	0.15
	⦿	Bos d 11	β-Casein	3.83
	⦿	Bos d 12	κ-Casein	0.14
Camel's milk	⁘	Cam d		< 0.10
Goat's milk	⁘	Cap h_milk		2.91
Mare's milk	⁘	Equ c_milk		0.28
Sheep's milk	⁘	Ovi a_milk		1.80

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	0.12
	⊙	Hev b 3	Small Rubber Particle Protein	< 0.10
	⊙	Hev b 5	Unknown	0.19
	⊙	Hev b 6.02	Pro-Hevein	0.10
	⊙	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	< 0.10
Celery	⊙	Api g 1	PR-10	< 0.10
Peanut	⊙	Ara h 8	PR-10	< 0.10
Silver birch	⊙	Bet v 1	PR-10	2.76
Hazelnut	⊙	Cor a 1.0401	PR-10	7.97
Soy	⊙	Gly m 4	PR-10	< 0.10
Apple	⊙	Mal d 1	PR-10	< 0.10
Oak	⊙	Que a 1	PR-10	< 0.10

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		< 0.10
Celery	⦿	Api g 2	nsLTP		< 0.10
	⦿	Api g 6	nsLTP		0.39
Peanut	⦿	Ara h 9	nsLTP		< 0.10
Mugwort	⦿	Art v 3	nsLTP		< 0.10
Hemp	⦿	Can s 3	nsLTP		< 0.10
Hazelnut	⦿	Cor a 8	nsLTP		< 0.10
Strawberry	⦿	Fra a 3	nsLTP		< 0.10
Sunflower seed	⦿	Hel a 3	nsLTP		< 0.10
Walnut	⦿	Jug r 3	nsLTP		< 0.10
Lentil	⦿	Len c 3	nsLTP		0.10
Apple	⦿	Mal d 3	nsLTP		0.10
Olive	⦿	Ole e 7	nsLTP		< 0.10
Wall pellitory	⦿	Par j 2	nsLTP		< 0.10
Pea	⦿	Pis s 3	nsLTP		< 0.10
London plane tree	⦿	Pla a 3	nsLTP		< 0.10
Cherry	⦿	Pru av 3	nsLTP		< 0.10
Peach	⦿	Pru p 3	nsLTP		< 0.10
Tomato	⦿	Sola l 6	nsLTP		< 0.10
Wheat	⦿	Tri a 14	nsLTP		0.22
Grape	⦿	Vit v 1	nsLTP		< 0.10
Maize	⦿	Zea m 14	nsLTP		< 0.10

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		0.32
	⦿	Ana o 2	11S Globulin		0.23
	⦿	Ana o 3	2S Albumin		14.57
Peanut	⦿	Ara h 1	7/8S Globulin		3.63
	⦿	Ara h 2	2S Albumin		8.45
	⦿	Ara h 3	11S Globulin		3.73
	⦿	Ara h 6	2S Albumin		5.69
	⦿	Ara h 15	Oleosin		< 0.10
Brazil nut	⦿	Ber e 1	2S Albumin		< 0.10
Pecan	⦿	Car i 1	2S Albumin		4.30
	⦿	Car i 2 (256-386)	7/8S Globulin		9.79
	⦿	Car i 4	11S Globulin		1.94
Coconut	⦿	Coc n 1	7/8S Globulin		0.21
Hazelnut	⦿	Cor a 9	11S Globulin		2.19
	⦿	Cor a 11	7/8S Globulin		2.90
	⦿	Cor a 14	2S Albumin		4.97

Name	E/M	Allergen	Allergen family	kU_A/L	
Buckwheat	⦿	Fag e 2	2S Albumin		1.23
Soy	⦿	Gly m 5	7/8S Globulin		4.72
	⦿	Gly m 6	11S Globulin		2.40
	⦿	Gly m 8	2S Albumin		10.23
Walnut	⦿	Jug r 1	2S Albumin		0.97
	⦿	Jug r 2	7/8S Globulin		6.64
	⦿	Jug r 4	11S Globulin		2.75
	⦿	Jug r 6	7/8S Globulin		< 0.10
Lentil	⦿	Len c 1	7/8S Globulin		2.64
Macadamia	⦿	Mac i 1.0101 (28-76)	α-Hairpinin		1.52
Poppy seed	⦿	Pap s 1.0101 (27-846)	α-Hairpinin		0.96
Pine nut	⦿	Pin p 1	2S Albumin		< 0.10
Pea	⦿	Pis s 1	7/8S Globulin		4.34
	⦿	Pis s 2	7/8S Globulin		1.32
Pistachio	⦿	Pis v 1	2S Albumin		8.49
	⦿	Pis v 2	11S Globulin		1.80
	⦿	Pis v 3	7/8S Globulin		2.35
Almond	⦿	Pru du 6	11S Globulin		0.49
Sesame	⦿	Ses i 1	2S Albumin		4.92
Mustard	⦿	Sin a 1	2S Albumin		0.65

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		10.81
	⦿	Can f 2	Lipocalin		< 0.10
	⦿	Can f 4	Lipocalin		0.11
	⦿	Can f 6	Lipocalin		1.41
Guinea pig	⦿	Cav p 1	Lipocalin		< 0.10
Horse	⦿	Equ c 1	Lipocalin		0.11
Cat	⦿	Fel d 4	Lipocalin		< 0.10
	⦿	Fel d 7	Lipocalin		3.15
Golden hamster	⦿	Mes a 1	Lipocalin		< 0.10
Mouse	⦿	Mus m 1	Lipocalin		< 0.10
Rabbit	⦿	Ory c 1	Lipocalin		0.18
	⦿	Ory c 2	Lipocalin		0.15
Djungarian hamster	⦿	Phod s 1	Lipocalin		< 0.10
Rat	⦿	Rat n 1	Lipocalin		< 0.10

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	7.58
Timothy grass	⊙	Phl p 12	Profilin	6.15

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	0.77
Carp	⊙	Cyp c 1	β-Parvalbumin	0.38
Atlantic cod	⊙	Gad m 1	β-Parvalbumin	0.25
Thornback ray	⊙	Raj c Parvalbumin	α-Parvalbumin	< 0.10
Salmon	⊙	Sal s 1	β-Parvalbumin	0.98
Atlantic mackerel	⊙	Sco s 1	β-Parvalbumin	0.85
Tuna	⊙	Thu a 1	β-Parvalbumin	0.62
Swordfish	⊙	Xip g 1	β-Parvalbumin	0.26

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	1.59
Dog	⊙	Can f 3	Serum Albumin	0.23
Horse	⊙	Equ c 3	Serum Albumin	0.19
Cat	⊙	Fel d 2	Serum Albumin	0.13
Egg yolk	⊙	Gal d 5	Serum Albumin	1.84
Pork	⊙	Sus d 1	Serum Albumin	1.40

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	6.18
Blomia tropicalis	⊙	Blo t 10	Tropomyosin	6.62
European house dust mite	⊙	Der p 10	Tropomyosin	5.51
Giant freshwater prawn	⊙	Mac r 1	Tropomyosin	10.04
Black tiger shrimp	⊙	Pen m 1	Tropomyosin	8.08
American cockroach	⊙	Per a 7	Tropomyosin	5.08
Tyrophagus putrescentiae	⊙	Tyr p 10	Tropomyosin	5.37

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	0.40
Cat	⦿	Fel d 1	Uteroglobin	16.84
Rabbit	⦿	Ory c 3	Uteroglobin	< 0.10

Raven Interpretation Summary

SAMPLE INFORMATION

The sample was tested on QR code 03AAQ31A, interpretation date 17/02/2026.

Of the tested 299 allergens, 100 were/was above the cut off of 0.3 kU_A/L. A sensitisation can be an indicator of an IgE dependent allergy. For all positive ALEX allergens, comments for interpretation guidance are listed below.

TOTAL IGE: 255 KU/L

The measured total IgE was 255 kU/L. With a total IgE titre above 100 kU/L, allergy is likely.

CROSS-REACTIVE ALLERGEN SENSITISATION DETECTED

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

Detected cross-reactive allergen sensitisations:

- PR-10s: Bet v 1, Cor a 1.0401
- nsLTPs: Api g 6
- Profilins: Cuc m 2, Phl p 12
- Parvalbumins: Clu h 1, Cyp c 1, Sal s 1, Sco s 1, Thu a 1
- Cysteine Proteases: Act d 1, Der f 1, Der p 1
- Storage Proteins: Ana o 3, Ara h 1, Ara h 2, Ara h 3, Ara h 6, Cor a 9, Cor a 11, Cor a 14, Fag e 2, Gly m 5, Gly m 6, Gly m 8, Jug r 1, Jug r 2, Jug r 4, Pis v 1, Pis v 2, Pis v 3, Ses i 1, Sin a 1
- Tropomyosins: Ani s 3, Blo t 10, Der p 10, Pen m 1, Per a 7
- Lipocalins: Can f 1, Can f 6, Fel d 7

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.

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.

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.

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.

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

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

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

GRASS POLLEN

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

Phl p 12 is a member of the Profilin allergen family and is associated with inhalative symptoms during pollen seasons of grasses, trees and weeds, and mostly mild forms of food allergy (e.g. oral allergy syndrome). The degree of cross-reactivity between Phl p 12 and other members of the Profilin allergen 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

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

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).

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

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

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

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

Can f 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.

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

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

Allergen avoidance is advised. Encasings for blankets, 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).

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

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).

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

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

Poppy seed
Sensitisation to poppy seed was detected. Allergic symptoms associated with poppy seed range from oral allergy syndrome to severe anaphylactic reactions. Exercise induced reactions after the consumption of poppy seed have been described.

Pap s 1.0101 is a member of the Vicilin-like 7S Globulin allergen family and contains α-Hairpinin peptides. Pap s 1.0101 is a food allergen found in poppy seeds and can cause clinical reactions ranging from mild to severe, including anaphylaxis as well as food-dependent exercise-induced anaphylaxis. Pap s 1.0101 shares some similarities with the α-Hairpinins Pru d 8 (almond) and Mac i 1.0101 (macadamia), potentially contributing to cross-reactivity. Pap s 1.0101 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).

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

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

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

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

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

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

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

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

FRUITS

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

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

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).

NUTS AND LEGUMES

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

Pru du 6 is a member of the 11S Globulin allergen family. The degree of cross-reactivity is between Pru du 6 and other members of this family is low to medium. Pru du 6 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).

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 1, Ana o 3.

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

Chickpea
Sensitisation to Chickpea detected. Allergic symptoms associated with chickpea range from oral allergy syndrome to anaphylaxis. Chickpea allergy may result from primary peanut allergy or occur independently.

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 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).

Lentil
Sensitisation to lentil was detected. Allergic symptoms associated with lentil range from oral allergy syndrome to anaphylaxis. Lentil allergy may result from primary peanut allergy or occur independently.

Len c 1 is a member of the 7/8S Globulin protein family. The degree of cross-reactivity between Len c 1 and other members of this family is low to medium. Len c 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).

Lupine seed
Sensitisation to lupine seed was detected. Allergic symptoms associated with lupine seed range from oral allergy syndrome to anaphylaxis. Lupine flour is used as a substitute or additive in e.g. wheat flour. As an occupational allergen lupine flour is able to induce rhinoconjunctivitis and asthma.

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

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

Mac i 1.0101 is a Vicilin-like 7S Globulin with α-Hairpinin peptides and a storage protein. It shows sequence similarity with the N-terminal region of Jug r 2 (walnut), potentially contributing to cross-reactivity. Mac i 1.0101 is stable towards heat and digestion. Therapy management involves educating patients on avoiding macadamia nuts. Emergency kits with adrenaline autoinjectors (EpiPen) are prescribed for severe reactions.

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

Pea
Sensitisation to pea was detected. Allergic symptoms associated with pea range from oral allergy syndrome to anaphylaxis. Pea allergy may result from primary peanut allergy or occur independently.

Pis s 1 is a storage protein (7/8S Globulin) and is associated with clinical reactions up to severe anaphylaxis. The degree of cross-reactivity to other members of this family is high for lentil (Len c 1), medium for peanut (Ara h 1) and soy (Gly m 5). The importance of these cross-reactions has to be analysed on a clinical level. Pis s 1 is resistant to heat and digestion.

Pis s 2 is a storage protein (7/8S Globulin) and a major allergen in peas. The degree of cross-reactivity to related storage proteins is high for legumes like broad bean or chickpea and medium for lupine and soy. The importance of these cross-reactions has to be analysed on a clinical level. Pis s 2 is 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).

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.

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, Pis v 2, Pis v 3.

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 5, 6 & 8 are storage proteins associated with clinical reactions up to severe anaphylaxis. The degree of cross-reactivity between storage proteins from soy 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. Gly m 5,6 & 8 are stable towards heat and digestion. Positive results were obtained for: Gly m 5, Gly m 6, Gly m 8.

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

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

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

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 6 is a member of the nsLTP type II allergen family and can cause clinical reactions from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity between Api g 6 and members of the nsLTP type I family (e.g. Pru p 3) is low. Api g 6 is stable towards heat and digestion. Api g 6 is located in the celery bulb, in contrast to Api g 2.

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

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

Include extensive patient training on avoidance measures.

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

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

Gal d 4 is a member of the Lysozyme C allergen family. Gal d 4 is used as an additive in pharmaceutical products (E1105) and various foods (e.g. cheese). Clinical reactions to Gal d 4 also occur by the intake of raw or mildly heated hen's egg containing products.

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.

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

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

RED MEAT

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

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

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

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.

Cyp c 2 is a member of the β-Enolase family and found in the muscle tissue of common carp. The β-Enolase family is heat-labile and found in several fish species. β-Enolases are minor fish allergens and due to their heat-labile nature, the potency of β-Enolase as a food allergen remains to be defined. Cross-reactivity between Cyp c 2 and β-Enolases from fish and other species such as chicken, bacteria, yeast and other organisms is possible and should be evaluated on a clinical level.

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.

Mac r 1 is a member of the Tropomyosin allergen family from the giant freshwater prawn. It is a highly heat-stable protein. Tropomyosin is an important allergen in shellfish-allergic patients. Sensitisation is possible via the oral and inhalative route. The degree of cross-reactivity between members of the Tropomyosin family is high among crustaceans, molluscs and insects (including edible insects) as well as mites. Sensitisation to either allergen might trigger an allergy to others and vice versa.

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

Include extensive patient training on avoidance measures and the prescription of an emergency kit (including adrenalin autoinjector for severe cases). DISCLAIMER: THE PRESENCE OF IgE-ANTIBODIES IMPLIES A RISK OF ALLERGIC REACTIONS AND HAS TO BE ANALYZED IN CONJUNCTION WITH THE CLINICAL HISTORY AND OTHER DIAGNOSTIC TEST RESULTS. THE RAVEN INTERPRETATION GUIDANCE SOFTWARE IS A TOOL TO SUPPORT PHYSICIANS IN THE INTERPRETATION OF ALEX RESULTS. RAVEN COMMENTS DO NOT REPLACE THE DIAGNOSIS BY A PHYSICIAN. NO LIABILITY IS ACCEPTED FOR RAVEN COMMENTS AND RESULTING THERAPEUTIC INTERVENTIONS. THE STATED COMMENTS ARE DESIGNED EXCLUSIVELY FOR ALEX RESULTS.

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