

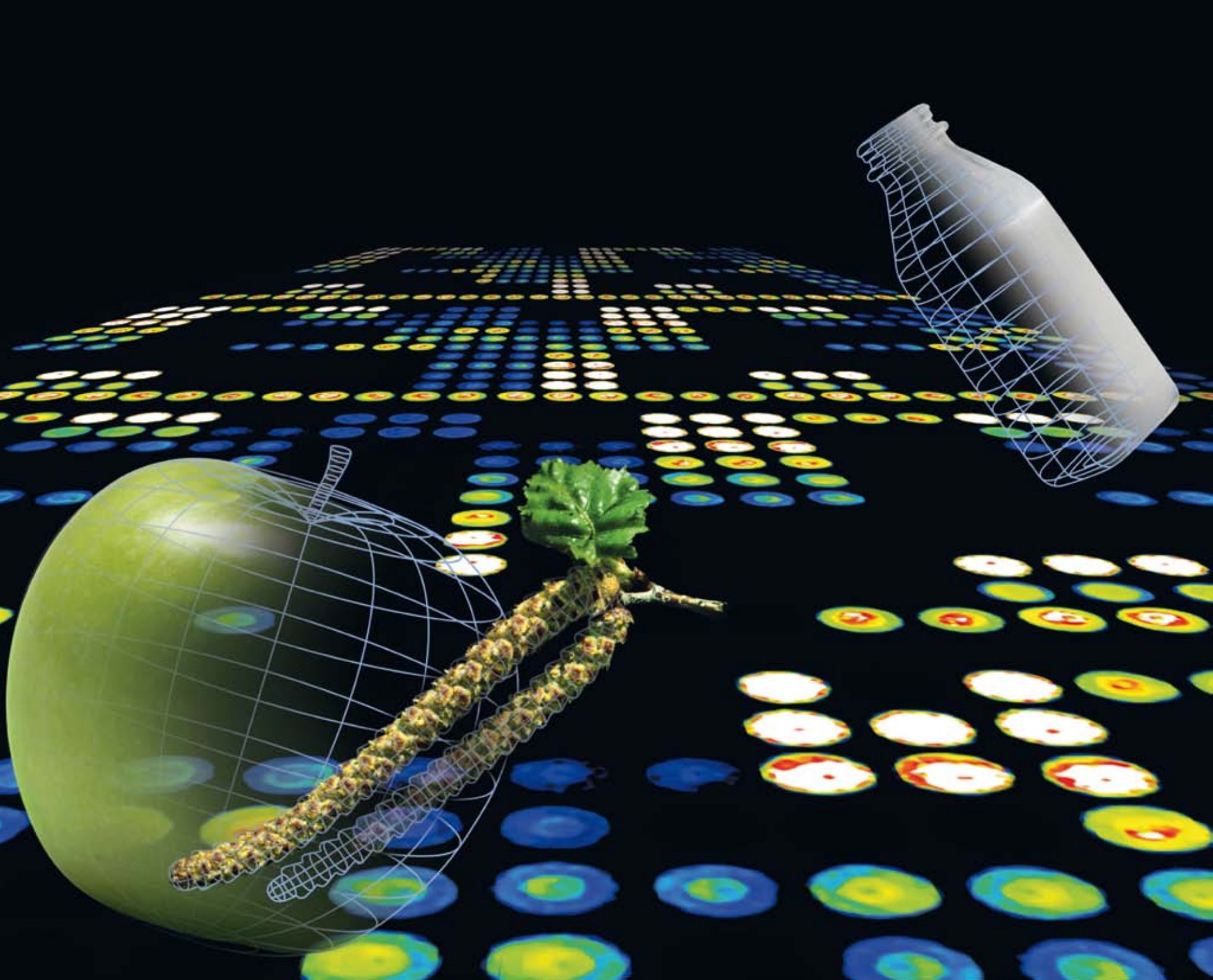


MOLECULAR ALLERGOLOGY



When you need
the bigger picture in allergy

Thermo
SCIENTIFIC



How do you handle complex patient cases?

Trying to find the original cause for allergic reactions can sometimes feel like looking for a needle in a haystack. This is especially true when symptoms and case history are inconsistent, the patient is multi-sensitized or show unsatisfactory response to the treatment. In those complex cases, making the correct diagnosis may be both time-consuming and problematic.

Go forward with ImmunoCAP® ISAC

- ImmunoCAP ISAC is a highly advanced tool for revealing the patient's IgE antibody profile.
- It is the first multiplexing *in vitro* diagnostic test for the allergy specialist that is based exclusively on allergen components.

Go broad – narrow down

- ImmunoCAP ISAC enables a simultaneous measurement of IgE antibodies to multiple allergen components in a single step, using only 30 µl of serum or plasma.
- ImmunoCAP ISAC delivers IgE antibody results for a fixed panel of 112 components from 51 allergen sources.
- The results give you a highly detailed overview of primary and cross-reactive sensitizers, helping you assess the clinical risk for reactions.
- Based on this broad-spectrum IgE antibody profile, you can make better conclusions on how to proceed and optimize patient management.



For which patients is ImmunoCAP ISAC useful?

Most allergic patients have positive test results to numerous allergens and the true cause of symptoms can be difficult to identify due to an inconclusive medical history regarding the role of different allergens and reactions.

In up to 9 out of 10 multisensitized patients ImmunoCAP ISAC has shown to provide refined useful information.¹

How can ImmunoCAP ISAC help you?

- Shed light on the real sensitization profile of multi-sensitized patients.
- Reveal potential risk for severe food-related reactions.
- Identify the IgE antibody profile in patients with unsatisfactory response to treatment.
- Assess patient with idiopathic anaphylaxis.

Thanks to the cross-reacting proteins ImmunoCAP ISAC can give you information on hundreds of allergen sources in addition to the 51 sources the proteins are derived from.

ImmunoCAP ISAC can also reveal unexpected sensitizations or help you rule out allergy by delivering IgE results for a broad spectrum of allergens.

¹Structured assessment of component resolved diagnosis using a immunoassay platform for multiplex measurement of sIgE in multi-sensitized allergic patients Luengo, O; Labrador, M; Guilarte, M; Garriga, T; Sala, A; Cardona, V Hospital Universitari Vall d'Hebron, Allergy Section. Internal Medicine Department, Barcelona. 29th Congress of EAACI, 5 – 9 June 2010, London.

Features and benefits of ImmunoCAP ISAC

Overview picture of the patients IgE antibody profile

Cutting edge multiplexing technology and a broad allergen profile combine to give you and the patient a wider picture of sensitizations to both cross-reactive and species specific allergen components in one single test.

Broad molecular allergen panel

A highly advanced *in vitro* diagnostic test using multiplexing technology. It is a miniaturized immunoassay platform with 112 allergen components immobilized on the biochip.

Structured result report

An innovative software generating structured result reports including guiding comments for easier interpretation.

Low sample volume

Only 30 µl of serum or plasma is needed for multiplex measurement of IgE antibodies to a fixed panel of 112 allergen components from 51 sources in a single test.

Both capillary and venous blood sampling can be used

Capillary blood sampling enables a less invasive procedure when testing young children.

Semi-quantitative determination

Semi-quantitative results, giving an indication of the specific IgE level, are reported in ISAC Standardized Units (ISU).

Low risk for false positive results

Low background gives blank results for non-atopic healthy controls as well as very good specificity for patients with high total IgE such as patients with atopic dermatitis.

ImmunoCAP ISAC

– informative patterns
answering the clinical
questions

ImmunoCAP ISAC provides a large amount of allergen specific IgE antibody information – the big picture – in a single step. This enables patient investigations that require less time and resources. As a result, effective and optimized management can be started earlier, which in turn leads to improved patient health and quality of life.

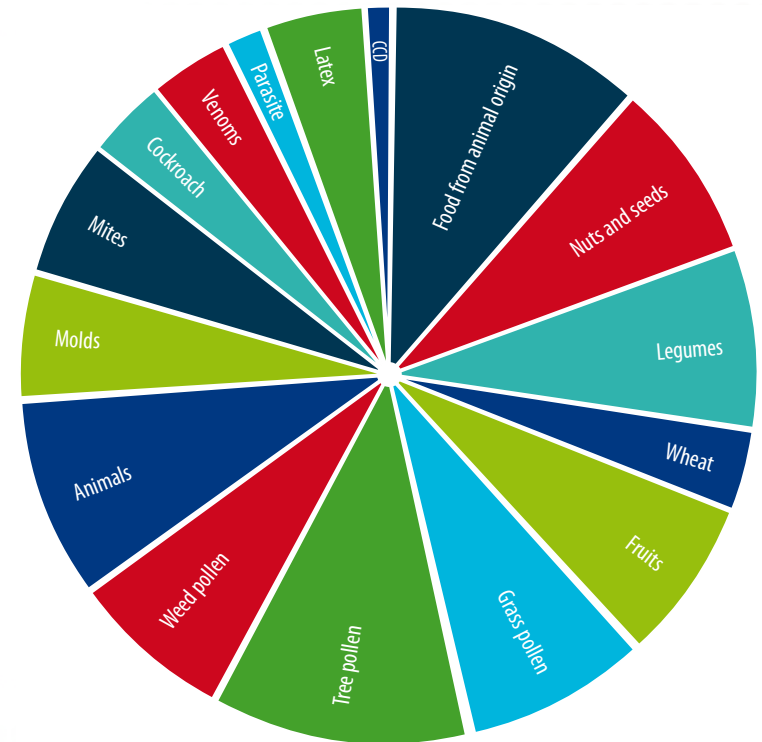
The screenshot shows a structured report with the following sections:

- Thermo** logo and **ImmunoCAP** logo.
- Header information: Patient name, ID, Date, and other details.
- 1. Summary of positive IgE results**: A table listing allergen groups and specific allergens with corresponding IgE levels and clinical significance.

Group	Allergen	Result	Clinical Significance
Tree pollen	Alnus	++	Highly significant
	Ulmus	++	Highly significant
Grass pollen	Poa	++	Highly significant
	Lolium	++	Highly significant
Weed pollen	Ambrosia	++	Highly significant
	Ragweed	++	Highly significant
Fruits	Apple	++	Highly significant
	Peach	++	Highly significant
Legumes	Wheat	++	Highly significant
	Wheat gluten	++	Highly significant
Nuts and seeds	Walnut	++	Highly significant
	Almonds	++	Highly significant
Food from animal origin	Cow's milk	++	Highly significant
	Egg	++	Highly significant
Molds	Aspergillus	++	Highly significant
	Cladosporium	++	Highly significant
Animals	Cat	++	Highly significant
	Dog	++	Highly significant
Mites	Dermatophagoides	++	Highly significant
	Uropoda	++	Highly significant
Venoms	Cockroach	++	Highly significant
	Spider	++	Highly significant
Parasite	Latex	++	Highly significant
	Parasite	++	Highly significant

The results are presented in a structured report including guiding comments for interpretation.

Allergen components by source



ImmunoCAP ISAC contains a wide array of proteins from various allergen sources.

IMMUNOCAP ISAC ALLERGEN COMPONENTS

ALLERGEN COMPONENT	ALLERGEN SOURCE COMMON NAME	LATIN NAME	PROTEIN GROUP
Food Allergens			
Gal d 1	Egg white	<i>Gallus domesticus</i>	Ovomucoid
Gal d 2	Egg white	<i>Gallus domesticus</i>	Ovalbumin
Gal d 3	Egg white	<i>Gallus domesticus</i>	Conalbumin/Ovotransferrin
Gal d 5	Egg yolk/chicken meat	<i>Gallus domesticus</i>	Livetin/Serum albumin
Bos d 4	Cow's milk	<i>Bos domesticus</i>	Alpha-lactalbumin
Bos d 5	Cow's milk	<i>Bos domesticus</i>	Beta-lactoglobulin
Bos d 6	Cow's milk and meat	<i>Bos domesticus</i>	Serum albumin
Bos d 8	Cow's milk	<i>Bos domesticus</i>	Casein
Bos d lactoferrin	Cow's milk	<i>Bos domesticus</i>	Transferrin
Gad c 1	Cod	<i>Gadus callarias</i>	Parvalbumin
Pen m 1	Shrimp	<i>Penaeus monodon</i>	Tropomyosin
Pen m 2	Shrimp	<i>Penaeus monodon</i>	Arginine kinase
Pen m 4	Shrimp	<i>Penaeus monodon</i>	Sarcoplasmic Ca-binding protein
Ana o 2	Cashew nut	<i>Anacardium occidentale</i>	Storage protein, 11S globulin
Ber e 1	Brazil nut	<i>Bertholletia excelsa</i>	Storage protein, 2S albumin
Cor a 1.0401	Hazelnut	<i>Corylus avellana</i>	PR-10 protein
Cor a 8	Hazelnut	<i>Corylus avellana</i>	Lipid transfer protein (nsLTP)
Cor a 9	Hazelnut	<i>Corylus avellana</i>	Storage protein, 11S globulin
Jug r 1	Walnut	<i>Juglans regia</i>	Storage protein, 2S albumin
Jug r 2	Walnut	<i>Juglans regia</i>	Storage protein, 7S globulin
Jug r 3	Walnut	<i>Juglans regia</i>	Lipid transfer protein (nsLTP)
Ses i 1	Sesame seed	<i>Sesamum indicum</i>	Storage protein, 2S albumin
Ara h 1	Peanut	<i>Arachis hypogaea</i>	Storage protein, 7S globulin
Ara h 2	Peanut	<i>Arachis hypogaea</i>	Storage protein, Conglutin
Ara h 3	Peanut	<i>Arachis hypogaea</i>	Storage protein, 11S globulin
Ara h 6	Peanut	<i>Arachis hypogaea</i>	Storage protein, Conglutin
Ara h 8	Peanut	<i>Arachis hypogaea</i>	PR-10 protein
Ara h 9	Peanut	<i>Arachis hypogaea</i>	Lipid transfer protein (nsLTP)
Gly m 4	Soybean	<i>Glycine max</i>	PR-10 protein
Gly m 5	Soybean	<i>Glycine max</i>	Storage protein, Beta-conglycinin
Gly m 6	Soybean	<i>Glycine max</i>	Storage protein, Glycinin
Fag e 2	Buckwheat	<i>Fagopyrum esculentum</i>	Storage protein, 2S albumin
Tri a 14	Wheat	<i>Triticum aestivum</i>	Lipid transfer protein (nsLTP)
Tri a 19.0101	Wheat	<i>Triticum aestivum</i>	Omega-5 gliadin
Tri a aA_TI	Wheat	<i>Triticum aestivum</i>	
Act d 1	Kiwi	<i>Actinidia deliciosa</i>	
Act d 2	Kiwi	<i>Actinidia deliciosa</i>	Thaumatine-like protein
Act d 5	Kiwi	<i>Actinidia deliciosa</i>	
Act d 8	Kiwi	<i>Actinidia deliciosa</i>	PR-10 protein

IMMUNOCAP ISAC ALLERGEN COMPONENTS

ALLERGEN COMPONENT	ALLERGEN SOURCE COMMON NAME	LATIN NAME	PROTEIN GROUP
Food Allergens			
Api g 1	Celery	<i>Apium graveolens</i>	PR-10 protein
Mal d 1	Apple	<i>Malus domestica</i>	PR-10 protein
Pru p 1	Peach	<i>Prunus persica</i>	PR-10 protein
Pru p 3	Peach	<i>Prunus persica</i>	Lipid transfer protein (nsLTP)
Aeroallergens			
Cyn d 1	Bermuda grass	<i>Cynodon dactylon</i>	Grass group 1
Phl p 1	Timothy grass	<i>Phleum pratense</i>	Grass group 1
Phl p 2	Timothy grass	<i>Phleum pratense</i>	Grass group 2
Phl p 4	Timothy grass	<i>Phleum pratense</i>	
Phl p 5	Timothy grass	<i>Phleum pratense</i>	Grass group 5
Phl p 6	Timothy grass	<i>Phleum pratense</i>	
Phl p 7	Timothy grass	<i>Phleum pratense</i>	Polcalcin
Phl p 11	Timothy grass	<i>Phleum pratense</i>	
Phl p 12	Timothy grass	<i>Phleum pratense</i>	Profilin
Aln g 1	Alder	<i>Alnus glutinosa</i>	PR-10 protein
Bet v 1	Birch	<i>Betula verrucosa</i>	PR-10 protein
Bet v 2	Birch	<i>Betula verrucosa</i>	Profilin
Bet v 4	Birch	<i>Betula verrucosa</i>	Polcalcin
Cor a 1.0101	Hazel pollen	<i>Corylus avellana</i>	PR-10 protein
Cry j 1	Japanese cedar	<i>Cryptomeria japonica</i>	
Cup a 1	Cypress	<i>Cupressus arizonica</i>	
Ole e 1	Olive	<i>Olea europaea</i>	
Ole e 7	Olive	<i>Olea europaea</i>	Lipid transfer protein (nsLTP)
Ole e 9	Olive	<i>Olea europaea</i>	
Pla a 1	Plane tree	<i>Platanus acerifolia</i>	
Pla a 2	Plane tree	<i>Platanus acerifolia</i>	
Pla a 3	Plane tree	<i>Platanus acerifolia</i>	Lipid transfer protein (nsLTP)
Amb a 1	Ragweed	<i>Ambrosia artemisiifolia</i>	
Art v 1	Mugwort	<i>Artemisia vulgaris</i>	
Art v 3	Mugwort	<i>Artemisia vulgaris</i>	Lipid transfer protein (nsLTP)
Che a 1	Goosefoot	<i>Chenopodium album</i>	
Mer a 1	Annual mercury	<i>Mercurialis annua</i>	Profilin
Par j 2	Wall pellitory	<i>Parietaria judaica</i>	Lipid transfer protein (nsLTP)
Pla l 1	Plantain (English)	<i>Plantago lanceolata</i>	
Sal k 1	Saltwort	<i>Salsola kali</i>	
Can f 1	Dog	<i>Canis familiaris</i>	Lipocalin
Can f 2	Dog	<i>Canis familiaris</i>	Lipocalin
Can f 3	Dog	<i>Canis familiaris</i>	Serum albumin
Can f 5	Dog	<i>Canis familiaris</i>	Arginine esterase

IMMUNOCAP ISAC ALLERGEN COMPONENTS

ALLERGEN COMPONENT	ALLERGEN SOURCE COMMON NAME	LATIN NAME	PROTEIN GROUP	
Aeroallergens				
Equ c 1	Horse	<i>Equus caballus</i>	Lipocalin	
Equ c 3	Horse	<i>Equus caballus</i>	Serum albumin	
Fel d 1	Cat	<i>Felis domesticus</i>	Uteroglobulin	
Fel d 2	Cat	<i>Felis domesticus</i>	Serum albumin	
Fel d 4	Cat	<i>Felis domesticus</i>	Lipocalin	
Mus m 1	Mouse	<i>Mus musculus</i>	Lipocalin	
Alt a 1	Alternaria	<i>Alternaria alternata</i>	Enolase	
Alt a 6	Alternaria	<i>Alternaria alternata</i>		
Asp f 1	Aspergillus	<i>Aspergillus fumigatus</i>	Mn superoxide dismutase	
Asp f 3	Aspergillus	<i>Aspergillus fumigatus</i>		
Asp f 6	Aspergillus	<i>Aspergillus fumigatus</i>		
Cla h 8	Cladosporium	<i>Cladosporium herbarum</i>		
Blo t 5	House dust mite	<i>Blomia tropicalis</i>	Tropomyosin	
Der f 1	House dust mite	<i>Dermatophagoides farinae</i>		
Der f 2	House dust mite	<i>Dermatophagoides farinae</i>		
Der p 1	House dust mite	<i>Dermatophagoides pteronyssinus</i>		
Der p 2	House dust mite	<i>Dermatophagoides pteronyssinus</i>		
Der p 10	House dust mite	<i>Dermatophagoides pteronyssinus</i>		
Lep d 2	Storage mite	<i>Lepidoglyphus destructor</i>		
Bla g 1	Cockroach	<i>Blattella germanica</i>		Tropomyosin
Bla g 2	Cockroach	<i>Blattella germanica</i>		
Bla g 5	Cockroach	<i>Blattella germanica</i>		
Bla g 7	Cockroach	<i>Blattella germanica</i>		
Other				
Api m 1	Honey bee venom	<i>Apis mellifera</i>	Phospholipase A2	
Api m 4	Honey bee venom	<i>Apis mellifera</i>	Melittin	
Pol d 5	Paper wasp venom	<i>Polistes dominulus</i>	Venom, Antigen 5	
Ves v 5	Common wasp venom	<i>Vespula vulgaris</i>	Venom, Antigen 5	
Ani s 1	Anisakis	<i>Anisakis simplex</i>	Tropomyosin	
Ani s 3	Anisakis	<i>Anisakis simplex</i>		
Hev b 1	Latex	<i>Hevea brasiliensis</i>	Profilin	
Hev b 3	Latex	<i>Hevea brasiliensis</i>		
Hev b 5	Latex	<i>Hevea brasiliensis</i>		
Hev b 6.01	Latex	<i>Hevea brasiliensis</i>		
Hev b 8	Latex	<i>Hevea brasiliensis</i>		
MUXF3	Sugar epitope from Bromelain		CCD-marker	

Storage protein

- Proteins stable to heat and digestion causing reactions also to cooked foods.
- Often associated with systemic and more severe reactions in addition to OAS.
- Proteins found in nuts and seeds serving as source material during the growth of a new plant.

LTP (non-specific Lipid Transfer Protein, nsLTP)

- Proteins stable to heat and digestion causing reactions also to cooked foods.
- Often associated with systemic and more severe reactions in addition to OAS.
- Associated with allergic reactions to fruit and vegetables especially in regions where peach and closely related fruits are cultivated.

PR-10 protein, Bet v 1 homologue

- Most PR-10 proteins are sensitive to heat and digestion and cooked foods are often tolerated.
- Often associated with local symptoms such as oral allergy syndrome (OAS).
- Associated with allergic reactions to pollens, fruits and vegetables.

Profilin

- Proteins sensitive to heat and digestion and cooked foods are often tolerated.
- Seldom associated with clinical symptoms but may cause local and even severe reactions in some patients.
- Profilins are present in all pollen and plant foods.

CCD

- A marker for sensitization to cross-reactive carbohydrate determinants.
- Rarely causes allergic reactions, but may produce positive *in vitro*-test results to CCD-containing allergens from pollen, plant foods, insects and venoms.

Tropomyosin

- Proteins stable to heat and digestion causing reactions also to cooked foods.
- As food allergen often associated with systemic and more severe reactions in addition to OAS.
- Actin-binding proteins in muscle fibers and a marker for cross-reactivity between crustaceans, mites and cockroach.

Parvalbumin

- Proteins stable to heat and digestion causing reactions also to cooked foods.
- Often associated with systemic and more severe reactions in addition to OAS.
- Major allergens in fish and a marker for cross-reactivity among different species of fish and amphibians.

Serum albumin

- Proteins fairly sensitive to heat and digestion.
- Proteins present in different biological fluids and solids in all animals e.g., cow's milk, blood, beef and epithelia.
- Cross-reactions between albumins from different mammalian species are well known, for example between cat and dog and cat and pig (pork).

A combination of innovative biochip technology with cutting edge research in molecular allergology has resulted in ImmunoCAP ISAC – the most advanced in vitro diagnostic test for simultaneous measurement of specific IgE anti-bodies to a broad spectrum of allergen components.

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