ImmunoCAP[™] cross-reactivity map

thermo scientific

thermoscientific



France +33 1 61 37 34 30

Denmark +45 70 3292 110 **Finland** +358 10 3292 110

8884 8885 15 88+ **snid)**

Brazil +55 11 2730 3134

02 02 072 † 84+ **sirtsuA**

MADowm

00 02 9f 8f 94+ **n9b9w2 95iffo b69H**

Czech Republic +420 220 518 743

Germany +49 761 47 8050 Hong Kong +852 3107 7600 India +91 11 4610 7555/56 Italy +39 039 838 91 Korea +81 3 5826 1660 Korea +822 6196 5550 Norway +47 21 67 32 80 Portugal +351 21 423 5350 South Africa +27 11 792 6790

 Spain +34 935 765 800

 Sweden +46 18 16 60 60

 Switzerland +41 43 343 40 50

 The Vetherlands +31 30 602 37 00

 United Kingdom/Ireland +44 1 908 769 110

 USA +1 800 346 4364

 Other countries +46 16 50 00

Find out more at thermofisher.com/phadia

© 2020 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. 127917.AL.GB.EN.1.20





	Те	chnolo	ogy	gy					Possible cross-reactivity														Important protein families						
	ImmunoCAP ISAC _{Etta} multiplexing test	ImmunoCAP test	Allergen Code	Source	Component	Protein family or function	Primarly species- specific proteins	Fruits	Vegetables	Nuts, seeds	Legumes	Cereals	Spices	Grass pollen	Tree pollen	Weed pollen	Latex	Milk Meat	Fish	Egg	Seafood	Animals	Moulds	Mites	Insects	Venoms	Parasites	 Storage protein (1) 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 in nuts and seeds serving as source material during growth of new plants. 	
	n	n	g216	Bermuda	Cyn d 1	Grass group 1								•														LTP (non-specific Lipid Transfer Protein, nsLTP) (1) Proteins stable to heat and digestion causing reactions 	
	r r	r r	g205 g206	Timothy Timothy	Phl p 1 Phl p 2	Grass group 1 Grass group 2								•														 also to cooked foods. Often associated with systemic and more severe 	
	n r	n r	g208 g215	Timothy Timothy	Phl p 4 Phl p 5	Berberine bridge enzyme Grass group 5								•														reactions in addition to OAS. • Associated with alleroic reactions to fruit and vegetables	
	r	r	g209 g210	Timothy	Phip 6 Phip 7	Grass group 6 Polcalcin								•	•													especially in regions where peach and closely related fruits are cultivated.	
	r	r	g211	Timothy	Phi p 11 Phi p 12	Trypsin inhibitor												_											
	r		+0.15	Alder	Ain g 1	PR-10				•	•																	GRP (Gibberellin Regulated Protein) (2, 3) Proteins stable to heat and digestion causing reactions	
	r	r	t215 t216	Birch	Bet v 2	PR-10 Profilin		•	i	•	•	•	•	•		•	•											 Often associated with systemic and more severe 	
	r	r r	t220 t225	Birch	Bet v 4 Bet v 6	Polcalcin Isoflavone reductases																						reactions in addition to PFS.Associated with allergic reactions to stone fruits, citrus	
	r n			Hazel Japanese cedar	Cor a 1.0101 Cry j 1	PR-10 Pectate lyase		•	•	•	•				•													and pomegranate and pollen from trees in the cypress family.	
	n r	n r	t226 t224	Cypress Olive	Cup a 1 Ole e 1	Pectate lyase Trypsin inhibitor	•													_		-						PR-10 protein, Bet v 1 homologue (1)	
	n r	n r	t227 t240	Olive	Ole e 7 Ole e 9	LTP Glucanase	•	•	•	•	•	•	•		• •													 Most PR-10 proteins are sensitive to heat and digestion and cooked foods are often tolerated. 	
	r	r	t241	Plane	Pla a 1	Invertase Inhibitor	•											_										 Often associated with local symptoms such as oral allergy syndrome (OAS). 	
	n	n	w230	Ragweed	Amb a 1	Pectate lyase	•																					 Associated with allergic reactions to pollens, fruits and vegetables. 	
	n	n	w231	Mugwort	Art v 3	LTP		•	•	•	•	•	•		• •													Polcalcin (Calcium-binding proteins) (4)	
	r r			Goosefoot Mercury	Che a 1 Mer a 1	Trypsin Inhibitor Profilin	•		•	•	•	•	•	•	• •		•											 A marker for cross-reactivity between pollen, which is not present in plant foods 	
Ś	r r	r r	w211 w234	Wall pellitory Plantain	Parj 2 Pla I 1	LTP Trypsin Inhibitor	•																					Profilin (1)	
Jen	n r	n r	w232 e101	Saltwort Dog	Sal k 1 Can f 1	Pectin methylesterase Lipocalin	•															•						Proteins sensitive to heat and digestion and cooked Fourier and the sense of the sense sense of the sense of the sense of the sense of the sense sense o	
lerç	r	r	e102	Dog	Can f 2 Can f 3	Lipocalin Serum Albumin	•																					 Seldom associated with clinical symptoms but may 	
o al	r	r	e229	Dog	Can f 4	Lipocalin Arginine esterase/kallikrein	•												_									Profilins are present in all pollen and plant foods.	
Aer	r	r	e220	Dog	Can f 6	Lipocalin																•						CCD (4)	
	r n	r	e227	Horse Horse	Equic 1 Equic 3	Lipocalin Serum Albumin												• •	•			•						 A marker for sensitization to cross-reactive carbohydrate determinants. 	
	r r	r r	e94 e220	Cat Cat	Fel d 1 Fel d 2	Uteroglobin Serum Albumin	•											• •	•			•						 Rarely causes allergic reactions, but may produce positive in-vitro test results to CCD-containing allergens 	
	r	r	e228 e231	Cat Cat	Fel d 4 Fel d 7	Lipocalin Lipocalin																						from pollen, plant foods, insects and venoms.	
	n	n	e222	Mouse Swine	Mus m 1 Sus s PSA	Lipocalin Serum Albumin												• •				•						 Lipocalin (5,6,7) Stable proteins (and important allergens) in animals. 	
	r	r	m229	Alternaria	Alta 1 Alta 6	Acidic glycoprotein	•													_								 Certain lipocalins from different animal species may cross-react; 	
	r	r	m218	Aspergillus Aspergillus	Asp f 1	Mitogillin family	•											_	_									Can f 1– Fel d 7	
	r	r	m219	Aspergillus	Asp f 3	Peroxysomal protein																						Can f 6 – Fel d 4 – Equ c 1 – Mus m 1 The bicket design and the primary indicate the primary indicates the primary indicat	
	r	r	m221 m222	Aspergillus tumigatus Aspergillus	Asp f 6	Mn superoxide dismutase																	•					sensitizer (6)	
	r	n	k87	Aspergillus oryzae Blomia	Asp o 21 Blo t 5	Alpha-amylase Group 5 mite allergen	•																•					Parvalbumin (5)	
	r n			Cladosporium Dermatophagoides	Cla h 8 Der f 1	Mannitol dehydrogenase Cysteine protease																-	•	•				 Proteins stable to heat and digestion causing reactions also to cooked foods. 	
	r n	r	d202	Dermatophagoides Dermatophagoides	Der f 2 Der p 1	NPC2 family Cysteine protease																		•				 Often associated with systemic and more severe reactions in addition to OAS. 	
	r	r	d203	Dermatophagoides	Der p 2 Der p 10	NPC2 family Tropomyosin			_										_			-		•				 Major allergen in fish and a marker for cross-reactivity among different species of fish and amphibians. 	
	r	r	d209	Dermatophagoides	Der p 23	Peritrophin-like protein												_		_				•				Tropomyosin (5)	
	r			Cockroach	Blag 1	Cockroach group 1																						 Proteins stable to heat and digestion causing reactions also to cooked foods. 	
	r			Cockroach	Blag 5	Glutathione S-transferase																						 As food allergen often associated with systemic and more severe reactions in addition to OAS. 	
	n			Cockroach	Blag7	Tropomyosin																						 Actin-binding proteins in muscle fibres and a marker for cross-reactivity between crustaceans, mites and 	
	n	n	f233 f232	Egg white Egg white	Gal d 1 Gal d 2	Ovomucoid Ovalbumin														•								cockroach.	
	n	n	f323	Egg white	Gal d 3 Gal d 4	Conalbumin/Ovotransferrin			-			_										-						Serum albumin (5, 8) • Proteins fairly sensitive to heat and direction	
	n			Egg yolk/chicken	Gal d 5	Livetin/Serum Albumin						_						•										 Proteins present in different biological fluids and solids in all animals a display mills blood bost and solids in 	
	n	n	f76	Cow's milk	Bos d 5	Beta-lactoglobulin																						Cross-reactions between albumins from different mammalian poorlog are well leave for any second	
	n	n	e204 f78	Cow's milk and meat Cow's milk	Bos d 6 Bos d 8	Serum Albumin Casein																-						between cat and dog.	
	n	r	f355	Cow's milk Carp	Bos d Lactoferrin Cyp c 1	Transferrin Parvalbumin												•											
	r	r	f426 f351	Cod Shrimp	Gad c 1 Pen a 1	Parvalbumin Tropomyosin												_				_			•		•	Important Allorgons	
	n			Shrimp	Pen m 1 Pen m 2	Tropomyosin Arginine kinase												_		_	•			•	•		•	Important Allergens	
	n			Shrimp Cashew nut	Pen m 4	Sarcoplasmic Calcium binding protein Storage protein, 11S globulin			-					_				_	_		•	-						Gal d 1, Ovomucoid (egg white) (5) • IgE abs to ovomucoid are associated with persistent egg	
	r	r	f443	Cashew nut	Ana o 3	Storage protein, 25 albumin																						allergy and usually neither raw or cooked is tolerated.	
	r	r	f428	Hazelnut	Cor a 1.0401	PR-10		•	•	•	•	_			•													Ara h 1, 2, 3, 6, 8 and 9 (peanut) (5) • IgE abs to Ara h 1, 2, 3, 6 and 9 (LTP) are associated	
sue	r n	n	f425 f440	Hazelnut Hazelnut	Cor a 9	Storage protein, 11S globulin	•		-	-	-	-	-		•													with systemic peanut reaction in addition to OAS. • IgE abs to Ara h 8 (PR-10) are usually associated	
erg	r r	r r	f439 f441	Hazelnut Walnut	Cor a 14 Jug r 1	Storage protein, 2S albumin Storage protein, 2S albumin																						with milder, local symptoms such as OAS, and often originating from birch sensitization.	
all	n r	r	f442 f449	Walnut Sesame	Jug r 3 Ses i 1	LTP Storage protein, 2S albumin	•			•		•			•													Gly m 4, 5 and 6 (sov) (5)	
000	r	r r	f422 f423	Peanut Peanut	Arah 1 Arah 2	Storage protein, 7S globulin Storage protein, 2S albumin	•																					 Soy bean allergic patients often have IgE abs to Gly m 5 and Gly m 6. Gly m 5.8 Ara h 1 and Gly m 6.8 Ara h 	
ш	r	r	f424	Peanut	Arah 3 Arah 6	Storage protein, 11S globulin Storage protein, 2S albumin	•		-													-						3, respectively, show high degree of similarity, also with corresponding proteins in other lear mas such as learling	
	r	r	f352	Peanut	Arah 8	PR-10	-	•	•	•	•																	IgE to these legume storage proteins may cross react and may be associated with clinical react it.	
	r	r	f353	Soy bean	Gly m 4	PR-10		•	i	•	•	-			•													 IgE abs to Gly m 4 (PR-10) are usually associated with local symptome such as OAS and institution. 	
	n	n	f431	Soy bean	Gly m 5 Gly m 6	Storage protein, Beta-conglycinin Storage protein, Glycinin	•																					sensitization. However, a few cases of severe allergic	
	n r	r	f433	Buckwheat Wheat	Fag e 2 Tri a 14	Storage protein, 2S albumin	•		•	•		•																reactions to Giy m 4 nave been reported to occur, e.g. during birch pollen season and often in combination with	

r	r	f433	Wheat	Tri a 14	LTP												
r	r	f416	Wheat	Tri a 19	Omega-5 gliadin	•											
n			Wheat	Tri a aA_TI	Alpha-Amylase / Trypsin Inhibitor												
n			Kiwi	Act d 1	Cysteine protease	•											
n			Kiwi	Act d 2	Thaumatin-like protein												
n			Kiwi	Act d 5	Kiwellin	•											
r	r	f430	Kiwi	Act d 8	PR-10												
r	r	f417	Celery	Api g 1	PR-10												
r	r	f434	Apple	Mal d 1	PR-10												
	r	f435	Apple	Mal d 3	LTP					•							
r	r	f419	Peach	Pru p 1	PR-10					•							
r	r	f420	Peach	Pru p 3	LTP												
	r	f421	Peach	Pru p 4	Profilin												
	r	f454	Peach	Pru p 7	Gibberellin-Regulating Protein												
	r	i208	Honey bee	Api m 1	Phospholipase A2	•											
	r	i214	Honey bee	Api m 2	Hyaluronidase												
	r	i215	Honey bee	Api m 3	Acid phosphatase	•											
	r	i216	Honey bee	Api m 5	Dipeptidyl peptidase												
		:047	Line av lane	A = 1 = 10	In even in											 	_

during birch pollen season and often in combination with exercise and intake of low-processed soy drinks.

Tri a 19, Omega-5 gliadin (wheat) (9, 10, 11)

- IgE abs to omega-5 gliadin (Tri a 19) in adults are associated with a risk of exercise- or NSAIDs-induced reactions in connection with wheat ingestion.
 IgE abs to omega-5 gliadin in children are associated with a risk of exercise.
- with a risk of immediate reactions to wheat.

Alt a 1 (Alternaria) (5)

- Alt a 1, the major allergen in alternaria is associated with asthma development.
- Primarily species-specific allergen
- Possible cross reactivity
- Can f 1 Fel d 7 possible cross-reactivity between lipocalins
- Can't f Fel d 4 Equ c 1 Mus m 1 possible cross
 reactivity between lipocalins

References:

- 1. Mills C, et al. Plant Food Allergens: John Wiley and Sons Ltd., 2004.

- 2004.
 Tuppo, L., et al. (2017). J Agric Food Chem 65(13): 2702-2710.
 Tuppo, L., et al. (2013). Clin Exp Allergy 43(1): 128-140
 Hauser M, et al. Allergy Asthma Clin Immunol 2010;6:1.
 Sastre J. Clin Exp Allergy 2010;40:1442-60.
 Matricardi et al. Pediatr Allergy Immunol. 2016; 27 Suppl 23:1-000 250

- 250
 Apostolovic D, et al. Allergy. 2016 Oct;71(10):1490-5.
 Wal JM. Ann Allergy Asthma Immunol 2004;93:S2-11.
 Morita E, et al. Allergol Int 2009;58.
 Palosuo K, et al. J Allergy Clin Immunol 2001;108:634-8.
 Ito K, et al. Allergy. 2008;63:1536-42.

š	"
d	D
ē	-
Ŧ	5
Ć	٦

			,	1°	/													
	r	i215	Honey bee	Api m 3	Acid phosphatase	•												
	r	i216	Honey bee	Api m 5	Dipeptidyl peptidase													
	r	i217	Honey bee	Api m 10	Icarapin	•												
	r	i210	Paper wasp	Pol d 5	Antigen 5	•												
	r	i211	Common wasp	Ves v 1	Phospholipase A1	•												
	r	i210	Common wasp	Ves v 5	Antigen 5	•												
r			Anisakis	Ani s 1	Serine protease inhibitor	•												
r			Anisakis	Ani s 3	Tropomyosin									•		•		
r	r	k215	Latex	Hev b 1	Rubber elongation factor	•												
r	r	k217	Latex	Hev b 3	Small rubber particle protein	•												
r	r	k218	Latex	Hev b 5	Acidic protein	•												
r			Latex	Hev b 6.01	Prohevein													
	r	k220	Latex	Hev b 6.02	Hevein													
r	r	k221	Latex	Hev b 8	Profilin					•								
	r	k224	Latex	Hev b 11	Chitinases													
n	n	o214	Bromelain	MUXF3	CCD-marker					•						•	•	
	n	k202	Pineapple	Ana c 2	Bromelain, enzyme											•		
n	n	0215	Bovine Thyroglobulin	Alpha-Gal	Gal-alpha-1,3-Gal (alpha-Gal)	•												