

# TESTS FOR ALLERGY

## NEW TECHNOLOGY

In August 2009 we commissioned new allergy test systems that further extend our testing menu. Our new technology detects Specific IgE to clinically important individual allergen molecules. We continue to offer testing for allergens to whole food and inhalant allergens. The main analyser platforms and reagent systems are the Phadia ImmunoCAP 250, ImmunoCAP 1000 and ISAC ImmunoCAP. Our comprehensive menu is included in this brochure. You may request the allergens using their alphanumeric codes. Please precede these codes with "Specific IgE for", or "Allergy serology for", or "RAST for".



Dear Colleague,

Welcome to our new Allergy Test Menu, one of the largest internationally available allergy testing menus. All our specific IgE testing is now performed on the Phadia ImmunoCAP 250 and Phadia ImmunoCAP 1000 system (pages 3-10). An advantage of the Phadia ImmunoCAP system is that, for certain key foods, the 95% probability of a positive food challenge has been determined for certain levels of allergen-specific IgE (see Table below). We will continue to report

allergen specific IgE values in kU/L and a semiquantitative class value. Please note that some patients with a "negative" or "0" class may have detectable traces of specific IgE that can have clinical significance as a marker of early sensitisation or previous significant sensitisation to insect venoms and drugs. In the most important practical advance in laboratory allergy diagnostics, the Phadia ImmunoCAP ISAC system now allows us to determine a patient's specific IgE to 103 clinically important allergen molecules from 47 different allergens. Tests that define the molecule in a food to which a patient has significant specific IgE, can provide diagnostic and prognostic information for patients with serious food allergy. Our new technology allows us to do this with recombinant ImmunoCAP allergens (page 10) or as a profile with the ISAC system (page 11). We continue to offer other tests important for assessing allergy problems: Total IgE, Tryptase, Eosinophilic Cationic Protein (ECP), C1 esterase and genetic testing for Hereditary Angioedema Types I, II and III (see next page).

We have always taken the view that we

should offer the best available allergy testing systems and give patients the opportunity to cover the cost of more definitive higher quality testing that the government will not meet. In May 2009, the Medicare Benefits Schedule reduced rebates for Allergy testing by 1%: a reimbursement that is now less than 20% of rebates in comparable countries for laboratory allergy testing. It is almost impossible to answer a simple, sensible laboratory allergy testing request within the constraints of the level of Medicare reimbursement. Consequently, the laboratory is unable to accept Medicare reimbursement for more than very basic allergy testing requests. In this menu, we seek to give your patients clear options and choices when it comes to allergy testing. You and your patients will be pleased to know that although some new allergens and mixes are more expensive, core individual allergens and extended panels are cheaper than previously.

Please send email enquiries to [kbaumgart@dhm.com.au](mailto:kbaumgart@dhm.com.au) or Phone: 02 98 555 286

**Karl W Baumgart**  
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## ALLERGEN SPECIFIC IgE

### Specific IgE Levels Conferring Very High Risk

ALLERGEN	kU/L	PPV
Egg (<= 2yo)	2	95%
Egg (> 2yo)	7	98%
Milk (<=2 yo)	5	95%
Milk (>2 yo)	15	95%
Peanut	14	100%
Fish	20	100%
Tree nuts	~15	~95%
Wheat	26	74%

This table was derived from several large studies in which patients were challenged with the food. The positive predictive value (PPV) of a specific IgE level for a positive challenge was determined. It illustrates that specific IgE levels for individual allergens are like "international currencies" and are not necessarily comparable for a particular level for all the allergens. It defines levels at which a challenge, or exposure, would be highly hazardous for a patient. Importantly, many patients could have serious reactions at much lower levels.

## ORDERING ALLERGY TESTS

We ask that you specifically nominate which allergens you would like tested. Please do not write the allergens to be tested in the clinical notes section of the request form. A comprehensive menu of allergens that we stock and test for is available in the following pages. If allergens are not available we may use cross-reactive ones or advise you on the report. Some "allergy symptoms" may result from intolerance mechanisms (salicylates, amines, MSG, metabisulphite) and detection of IgE to them is not useful or possible. You can request the allergens using their alphanumeric codes. To assist staff performing data entry, we appreciate it if you precede these codes by "Specific IgE for" or "Allergy serology for" or "RAST for".

If you simply write "RAST" we will now test as follows:

**Child 6 years or less:** dust mite, egg white, cow's milk, peanut and soy (Panel A1)

**Adult or child over 6 years:** dust mite, cat, dog, grass pollen and alternaria (Panel A2)

If you write "food and inhalant allergens", we will test a staple food mix (Fx5, that includes egg white, cow's milk, peanut, soy, wheat and codfish), dust mite, fescue grass pollen-which cross-reacts with almost all other grasses and, alternaria-an outdoor mould with small spores that can easily be inhaled into the small airways (Panel A16). We do recommend some extended panels of individual allergens and can specifically design panels for you and your patients.



SOUTHERN • IML  
PATHOLOGY

## TOTAL IgE

Normal total IgE levels (< 100 kU/L) do not exclude significant allergies. Patients with normal total IgE levels can still be allergic to bee venom, dustmite, and many other allergens.

Significant specific IgE levels are extraordinarily rare in individuals with total IgE values of less than 7 kU/L.

Persons with very elevated total IgE levels are more likely to have significant elevations in specific IgE. Very elevated levels of total IgE also occur in persons with severe eczema, helminthic and parasitic infestations as well as allergobronchopulmonary aspergillosis (ABPA). Monitoring total IgE levels is useful in patients on immunosuppression for their severe eczema as well as in ABPA.

## TRYPTASE

Elevated levels of mast cell tryptase in peripheral blood indicate systemic mast cell degranulation or an increased number of mast cells which can occur in patients with mastocytosis.

Tryptase is NOT ELEVATED in persons with anaphylaxis from foods or non-parenteral agents.

Elevated levels indicate an adverse reaction to a stinging insect or a reaction to an intravenous, intramuscular or subcutaneous diagnostic or therapeutic agent. Any elevated tryptase levels should be repeated after a period of time (3-10 days) to document a return to normal levels.

Persistently elevated levels of tryptase are strongly suggestive of systemic mastocytosis which may not always manifest with urticaria pigmentosa. Since mastocytosis is more common in persons with stinging insect reactions, persons who have had systemic reactions to stinging insects should always have their tryptase level checked together with relevant venom specific IgE. The test is performed on serum. Normal values are < 13.5 ug/L. For these indications, the test is Medicare rebatable.

## EOSINOPHILIC CATIONIC PROTEIN (ECP)

ECP is elevated in persons with active eosinophilic inflammation. It is a useful marker in the diagnosis and management of hypereosinophilic disorders. ECP is also a useful marker of allergic airways inflammation in young children.

The test is performed on serum. Normal values for children are < 20 ug/L and adults < 15 ug/L.

At present the test is only reimbursed by Medicare when requested in children under 12 years of age for assessment of airways inflammation (Please write "asthma" on clinical notes). For all other requests, the fee is \$50, non-rebatable.

## Type I & II (C1 ESTERASE INHIBITOR) HEREDITARY ANGIOEDEMA

This should be considered in anyone with a family history of angioedema without urticaria. C1 esterase level and function, C3 and C4 should be measured at the same time to facilitate interpretation of the results. Abnormal levels occur in persons with deficiency which has autosomal dominant inheritance. Persons with this disorder usually experience symptoms from puberty onwards and may have life-threatening episodes which are not responsive to adrenaline. Many patients also experience recurrent abdominal pain due to visceral angioedema. Functional deficiency may occur on a genetic basis or in older persons it can result from an interfering autoantibody associated with lymphoma. Abnormal functional assay results should always be repeated.

The C3, C4, quantitative and functional C1-esterase (C1-inhibitor) assays are performed on serum and reimbursed by Medicare. Sequencing for the detection of mutations causing Type I and II HAE is performed by the laboratory and the fee is \$395 (non-rebatable).

## TYPE III (FACTOR XII) HEREDITARY ANGIOEDEMA

This should also be considered, mainly in women, who have angioedema without urticaria. Type III (Factor XII) Hereditary Angioedema is detected by a real-time PCR assay which detects the most common mutation in Factor XII. This is a cause of angioedema without urticaria in women. This is the only assay for this disorder which is thought to be at least as common as Type I and Type II HAE. At present there is a non-rebatable fee of \$120. The laboratory can also perform sequencing of Factor XII if required. The fee is \$395 (non-rebatable).

## INITIAL INVESTIGATION PANELS

If you write "RAST" or "Allergy serology", but do not specify the allergens, we will perform the tests listed under A1 (for a child 6 years or less) or A2 (Adult, or child over 6 years). Any subsequently requested additional allergens are charged according to the billing policy listed below.

A1: CHILD 6 years or less	
Total IgE	
D1	Dustmite
F1	Egg white
F2	Cow's milk
F13	Peanut
F14	Soy

A2: ADULT, or CHILD over 6 years	
Total IgE	
D1	Dustmite
G4	Grass pollen (Fescue)
E1	Cat
E5	Dog
M6	Alternaria

## OTHER COMMON INITIAL INVESTIGATION PANELS

\* Please write the name and code of the panel on the request form.

One (1) of our panels is within our allowance under Medicare

A4 ANIMAL INHALANTS	
E1	Cat
E5	Dog
D1	Dustmite
G4	Grass pollen

A5 RURAL INHALANTS	
G17	Paspalum
WX1	Weed mix
MX1	Mould mix

A6 PETS	
E1	Cat
E5	Dog
E6	Guinea pig
E82	Rabbit

A7 MOULDS	
M2	Cladosporium
M3	Aspergillus
M5	Candida albicans
M6	Alternaria

## OTHER COMMON INITIAL INVESTIGATION PANELS

\* Please write the name and code of the panel on the request form.

One (1) of our panels is within our allowance under Medicare

A8 NATIVE TREES		A9 FOOD SCREEN		A10 NUTS		A11 SEAFOOD	
T18	Eucalyptus	FX1	Nut Mix	F13	Peanut	F3	Codfish
T19	Acacia	F23	Crab	F17	Hazelnut	F23	Crab
T21	Melaleuca	F4	Wheat	F20	Almond	F24	Prawn
T73	Australian Pine	F1	Egg	F201	Pecan nut	F80	Lobster
A12 CEREALS		A13 STAPLE FOODS		A14 INSECTS		A15 LATEX & FOODS	
F4	Wheat	F1	Egg white	I1	Honey bee venom	K82	Latex
F6	Barley	F2	Milk	I4	Paper wasp venom	F84	Kiwi fruit
F9	Rice	F13	Peanut	I3	Yellow Jacket	F87	Melon
F14	Soy	F14	Soybean	I70	Fire ant venom	F92	Banana
				I71	Mosquito		
A16 FOOD & INHALANTS							
FX5	Staple Foods	G4	Grass Pollen (fescue)	D1	Dust Mite	M6	Alternaria

## A3 CHILD ALLERGY ASSESSMENT PANEL (REQUEST "IgE AND RAST A3")

This new panel is designed for the assessment of children at high risk of allergic disease, especially those with eczema, possible food and inhalant allergies. The cost of this panel is \$108, for which a Medicare rebate of \$22.95 may be available.

D1	Dustmite	M6	Alternaria alternata	F202	Cashew
E1	Cat Epithelium	F1	Egg White	F17	Hazelnut
E82	Rabbit Epithelium	F75	Egg Yolk	F35	Potato
E5	Dog	F2	Milk	F84	Kiwi Fruit
E3	Horse Dander	F3	Codfish	F91	Mango
G2	Bermuda Grass	F14	Soybean	F92	Banana
G4	Grass Pollen (fescue)	F4	Wheat	K82	Latex
G5	Perennial Rye Grass	F10	Sesame Seed	M80	Staph. Enterotoxin A
W21	Parietaria judaica	F13	Peanut	M70	Pityrosporum orbiculare

## EXTENDED ALLERGEN PANEL EXAMPLES

\* Our charge for each of these panels is \$80, for which a rebate of \$22.95 may be available per episode. Each allergen may also be ordered separately by its code or name. **Other personalised extended panels are available on request. Please call Dr Karl Baumgart to discuss your requirements.**

A20 INHALANTS		A21 MOULD & STORAGE MITES		A22 FOODS		A23 ANAPHYLACTIC FOODS	
D1	Dustmite	M1	Penicillium notatum	F1	Egg White	F3	Codfish
E1	Cat Epithelium	M2	Cladosporium herbarum	F2	Milk	F10	Sesame Seed
E5	Dog	M3	Aspergillus fumigatus	F3	Codfish	F13	Peanut
E3	Horse Dander	M4	Mucor racemosus	F4	Wheat	F17	Hazelnut
D201	Blomia tropicalis	M5	Candida albicans	F5	Rye	F18	Brazil Nut
G2	Bermuda Grass	M6	Alternaria alternata	F6	Barley	F20	Almond
G4	Grass pollen (fescue)	M8	Helminthosporium	F9	Rice	F23	Crab
G5	Perennial Rye Grass	M9	Fusarium moniliforme	F10	Sesame Seed	F24	Prawn
E82	Rabbit Epithelium	M10	Stemphylium botryosum	F13	Peanut	F27	Beef
W1	Common Ragweed	M13	Phoma betae	F14	Soybean	F36	Coconut
W9	English Plantain	M14	Epicoccum purpurascens	F17	Hazelnut	F40	Tuna
W10	Lamb's Quarters	M15	Trichoderma viride	F20	Almond	F41	Salmon
W21	Parietaria judaica	M70	Pityrosporum orbiculare	F27	Beef	F80	Lobster
T18	Eucalyptus	D1	D. pteronyssinus	F33	Orange	F84	Kiwi Fruit
T19	Acacia	D70	Acarus siro	F35	Potato	F91	Mango
T21	Melaleuca	D71	Lepidoglyphus destructor	F44	Strawberry	F92	Banana
T73	Australian Pine	D72	Tyrophagus putrescentiae	F45	Yeast	F201	Pecan Nut
M2	Cladosporium herbarum	D73	Glycyphagus domesticus	F84	Kiwi Fruit	F256	Walnut
M3	Aspergillus fumigatus	D74	Euroglyphus maynei	F91	Mango	F290	Oyster
M6	Alternaria alternata	D201	Blomia tropicalis	F92	Banana	K82	Latex

CORE INDIVIDUAL ALLERGENS

c Core individual allergens, \$4 each

Note: Requests for more than five of these will exceed our allowance under Medicare

MITES (HOUSE DUST & STORAGE)		
c	D1	<i>Dermatophagoides pteronyssinus</i>
c	D2	<i>Dermatophagoides farinae</i>
c	D70	<i>Acarus siro</i>
c	D71	<i>Lepidoglyphus destructor</i>
c	D72	<i>Tyrophagus putrescentiae</i>
c	D73	<i>Glycyphagus domesticus</i>
c	D74	<i>Euroglyphus maynei</i>
c	D201	<i>Blomia Tropicalis</i>
c	H2	House dust



ANIMAL & AVIAN PROTEINS		
c	E1	Cat epithelium & dander
c	E3	Horse dander
c	E4	Cow dander
c	E5	Dog dander
c	E6	Guinea pig epithelium
c	E7	Pigeon droppings
c	E71	Mouse epithelium
c	E73	Rat epithelium
c	E77	Budgerigar droppings
c	E78	Budgerigar feathers
c	E79	Budgerigar serum proteins
c	E81	Sheep epithelium
c	E82	Rabbit epithelium
c	E85	Chicken feathers
c	E201	Canary bird feathers
c	E213	Parrot feathers
c	E215	Pigeon feathers

GRASS & GRAIN POLLENS		
c	G1	Sweet vernal grass
c	G2	Bermuda grass
c	G4	Grass pollen (Fescue)
c	G5	Rye-grass
c	G6	Timothy grass
c	G8	Meadow grass
c	G10	Johnson grass
c	G11	Brome grass
c	G15	Cultivated wheat
c	G17	Paspalum

WEED POLLENS		
c	W1	Common ragweed
c	W4	False ragweed
c	W5	Wormwood
c	W6	Mugwort
c	W9	English plantain
c	W10	Goosefoot (Lamb's quarters)
c	W18	Sheep sorrel
c	W21	<i>Parietaria judaica</i>

TREE POLLENS		
c	T3	Birch
c	T7	Oak
c	T8	Elm
c	T9	Olive
c	T11	Sycamore, London plane
c	T15	White ash
c	T16	White pine
c	T17	Japanese cedar
c	T18	<i>Eucalyptus</i>
c	T19	<i>Acacia</i>
c	T21	<i>Melaleuca</i>
c	T23	Italian cypress
c	T57	Red Cedar
c	T73	Australian pine
c	T210	Privet pollen

MOULDS, YEASTS & TOXINS		
c	M1	<i>Penicillium notatum</i>
c	M2	<i>Cladosporium herbarum</i>
c	M3	<i>Aspergillus fumigatus</i>
c	M4	<i>Mucor racemosus</i>
c	M5	<i>Candida albicans</i> (yeast)
c	M6	<i>Alternaria alternata</i>
c	M8	<i>Helminthosporium halodes</i>
c	M9	<i>Fusarium moniliforme</i>
c	M10	<i>Stemphylium botryosum</i>
c	M13	<i>Phoma betae</i>
c	M14	<i>Epicoccum purpurascens</i>
c	M15	<i>Trichoderma viride</i>
c	M70	<i>Pityrosporum orbiculare</i>
c	M80	Staphylococcus enterotoxin A
c	M202	<i>Cephalosporium acremonium</i>
c	M205	<i>Trichophyton rubrum</i>
c	M227	<i>Malassezia spp.</i>

DRUGS		
c	C1	Penicilloyl G
c	C2	Penicilloyl V
c	C5	Ampicilloyl
c	C6	Amoxicilloyl
c	C7	Cefaclor
c	C73	Insulin, human
c	C74	Gelatin, bovine

VENOMS		
c	I1	Honey bee ( <i>Apis mellifera</i> )
c	I3	Yellow jacket ( <i>Vespula spp.</i> Common wasp)
c	I4	Paper wasp ( <i>Polistes spp.</i> )
c	I5	Yellow hornet ( <i>Dolichovespula arenaria</i> )



INSECTS		
c	I6	Cockroach ( <i>Blatella germanica</i> )
c	I70	Fire ant ( <i>Solenopsis invicta</i> )
c	I71	Mosquito spp. ( <i>Aedes communis</i> )
c	I72	Green nimiti ( <i>Cladotanytarsus</i> )
c	I202	Grain weevil ( <i>Sitophilus granarius</i> )

PARASITES		
c	P1	Ascaris
c	P4	Anisakis

MISCELLANEOUS		
c	O1	Cotton crude fibres
c	O70	Seminal fluid

OCCUPATIONALS		
c	K75	Isocyanate TDI
c	K76	Isocyanate MDI
c	K77	Isocyanate HDI
c	K80	Formaldehyde/Formalin
c	K82	Latex, <i>Hevea brasiliensis</i>
c	K84	Sunflower seed



## CORE INDIVIDUAL ALLERGENS

**c** Core individual allergens, \$4 each

**Note:** Requests for more than five of these will exceed our allowance under Medicare

FOOD		
c	<b>F1</b>	Egg white
c	<b>F2</b>	Milk
c	<b>F3</b>	Fish (cod)



c	<b>F4</b>	Wheat
c	<b>F5</b>	Rye
c	<b>F6</b>	Barley
c	<b>F7</b>	Oat
c	<b>F8</b>	Maize (Corn)
c	<b>F9</b>	Rice
c	<b>F10</b>	Sesame seed
c	<b>F11</b>	Buckwheat
c	<b>F12</b>	Pea
c	<b>F13</b>	Peanut



c	<b>F14</b>	Soya bean
c	<b>F15</b>	White bean
c	<b>F17</b>	Hazel nut
c	<b>F18</b>	Brazil nut
c	<b>F20</b>	Almond
c	<b>F23</b>	Crab
c	<b>F24</b>	Shrimp
c	<b>F25</b>	Tomato
c	<b>F26</b>	Pork
c	<b>F27</b>	Beef
c	<b>F31</b>	Carrot
c	<b>F33</b>	Orange
c	<b>F35</b>	Potato
c	<b>F36</b>	Coconut
c	<b>F37</b>	Blue mussel

c	<b>F40</b>	Tuna
c	<b>F41</b>	Salmon
c	<b>F44</b>	Strawberry
c	<b>F45</b>	Yeast ( <i>S. cerevisiae</i> )
c	<b>F47</b>	Garlic
c	<b>F48</b>	Onion
c	<b>F49</b>	Apple
c	<b>F59</b>	Octopus
c	<b>F75</b>	Egg yolk
c	<b>F79</b>	Gluten
c	<b>F80</b>	Lobster
c	<b>F81</b>	Cheese Cheddar-type
c	<b>F82</b>	Cheese Mould-type
c	<b>F83</b>	Chicken meat
c	<b>F84</b>	Kiwi fruit



c	<b>F85</b>	Celery
c	<b>F86</b>	Parsley
c	<b>F87</b>	Melons
c	<b>F88</b>	Mutton
c	<b>F89</b>	Mustard
c	<b>F90</b>	Malt
c	<b>F91</b>	Mango fruit
c	<b>F92</b>	Banana
c	<b>F93</b>	Cacao
c	<b>F94</b>	Pear
c	<b>F95</b>	Peach
c	<b>F96</b>	Avocado
c	<b>F201</b>	Pecan nut
c	<b>F202</b>	Cashew nut
c	<b>F203</b>	Pistachio
c	<b>F204</b>	Trout
c	<b>F207</b>	Clam
c	<b>F208</b>	Lemon
c	<b>F209</b>	Grapefruit
c	<b>F210</b>	Pineapple
e	<b>F211</b>	Blackberry
c	<b>F212</b>	Mushroom (champignon)
c	<b>F214</b>	Spinach
c	<b>F215</b>	Lettuce
c	<b>F216</b>	Cabbage

c	<b>F218</b>	Paprika (sweet pepper)
c	<b>F220</b>	Cinnamon
c	<b>F221</b>	Coffee
c	<b>F222</b>	Tea
c	<b>F224</b>	Poppy seed
c	<b>F225</b>	Pumpkin
c	<b>F226</b>	Pumpkin seed
c	<b>F235</b>	Lentil
c	<b>F237</b>	Apricot
c	<b>F242</b>	Cherry
c	<b>F244</b>	Cucumber
c	<b>F247</b>	Honey
c	<b>F253</b>	Pine nut (pignoles)
c	<b>F255</b>	Plum
c	<b>F256</b>	Walnut
c	<b>F258</b>	Squid
c	<b>F259</b>	Grape
c	<b>F260</b>	Broccoli
c	<b>F261</b>	Asparagus
c	<b>F262</b>	Aubergine (eggplant)
c	<b>F263</b>	Green pepper (unripe seed)
c	<b>F267</b>	Cardamon
c	<b>F270</b>	Ginger
c	<b>F279</b>	Chili pepper
c	<b>F280</b>	Black pepper
c	<b>F281</b>	Curry
c	<b>F284</b>	Turkey meat
c	<b>F287</b>	Red Kidney Bean
c	<b>F290</b>	Oyster
c	<b>F291</b>	Cauliflower
c	<b>F293</b>	Papaya
c	<b>F294</b>	Passionfruit
c	<b>F299</b>	Sweet Chestnut
c	<b>F300</b>	Goat milk
c	<b>F302</b>	Mandarin
c	<b>F309</b>	Chickpea
c	<b>F315</b>	Green bean
c	<b>F317</b>	Coriander
c	<b>F322</b>	Red currant
c	<b>F324</b>	Hop (fruit cone)
c	<b>F329</b>	Watermelon
c	<b>F333</b>	Linseed
c	<b>F335</b>	Lupin
c	<b>F338</b>	Scallop
c	<b>F340</b>	Cochineal (Carmine red, E120)
c	<b>F345</b>	Macadamia nut
c	<b>F346</b>	Abalone
c	<b>F347</b>	Quinoa

## CORE ALLERGEN MIXES

**c** Core mixed allergens \$8

**Note:** Requests for more than two of these will exceed our allowance under Medicare

HOUSE DUST			
<b>c</b>	<b>HX2</b>	(H2 D1 D2 I6)	Dust & Mite Mix

ANIMAL MIXES			
<b>c</b>	<b>EX1</b>	(E1 E3 E4 E5)	Animal Mix 1 Cat dander, Horse dander, Cow dander, Dog dander
<b>c</b>	<b>EX2</b>	(E1 E5 E6 E87 E88)	Animal Mix 2 Cat dander, Dog dander, Guinea pig epithelium, Rat, Mouse
<b>c</b>	<b>EX71</b>	(E70 E85 E86 E89)	Feather Mix Goose feathers, Chicken feathers, Duck feathers, Turkey feathers
<b>c</b>	<b>EX72</b>	(E78 E201 E196 E213 E214)	Bird Mix Budgerigar feathers, Canary bird feathers, Parakeet feathers, Parrot feathers, Finch feathers

GRASS MIXES			
<b>c</b>	<b>GX2</b>	(G2 G5 G6 G8 G10 G17)	Grass Mix Bermuda grass, Rye grass, Timothy grass, Meadow grass, Johnson grass, Bahia grass

TREE MIXES			
<b>c</b>	<b>TX7</b>	(T9 T12 T16 T18 T19 T21)	Tree Mix Olive, Willow, White Pine, Eucalyptus, Acacia, Melaleuca

WEED MIXES			
<b>c</b>	<b>WX1</b>	(W1 W6 W9 W10 W11)	Weed Mix Common ragweed, Mugwort, English Plantain, Goosefoot Lamb's Quarters, Saltwort
<b>c</b>	<b>WX5</b>	(W1 W6 W7 W8 W12)	Weed & Flower Mix Common ragweed, Mugwort, Ox-eye Daisy, Dandelion, Golden rod

MOULD MIXES			
<b>c</b>	<b>MX2</b>	(M1 M2 M3 M5 M6 M8)	Mould Mix Penicillium chrysogenum, Cladosporium herbarum, Aspergillus fumigatus, Candida albicans, Alternaria alternata, Setomelanomma rostrata

FOOD MIXES			
<b>c</b>	<b>FX1</b>	(F13 F17 F18 F20 F36)	Nut Mix Peanut, Hazel nut, Brazil nut, Almond, Coconut
<b>c</b>	<b>FX2</b>	(F3 F24 F37 F40 F41)	Seafood Mix Fish, Shrimp, Blue mussel, Tuna, Salmon
<b>c</b>	<b>FX3</b>	(F4 F7 F8 F10 F11)	Cereal Mix Wheat, Oat, Maize, Sesame seed, Buckwheat
<b>c</b>	<b>FX5</b>	(F1 F2 F3 F4 F13 F14)	Staple Food Mix Egg white, Milk, Fish, Wheat, Peanut, Soybean
<b>c</b>	<b>FX15</b>	(F33 F49 F92 F95)	Fruit Mix Orange, Apple, Banana, Peach
<b>c</b>	<b>FX19</b>	(F31 F35 F214 F244)	Vegetable Mix Carrot, Potato, Spinach, Cucumber
<b>c</b>	<b>FX70</b>	(F272 F274 F273 F275)	Spice Mix 1 Tarragon, Marjoram, Thyme, Lovage
<b>c</b>	<b>FX71</b>	(F265 RF266 F267 F268)	Spice Mix 2 Caraway, Mace, Cardamom, Clove
<b>c</b>	<b>FX72</b>	(F269 F219 F270 F271)	Spice Mix 3 Basil, Fennel seed, Ginger, Anise
<b>c</b>	<b>FX73</b>	(F26 F27 F83)	Meat Mix Pork, Beef, Chicken

OCCUPATIONAL MIXES			
<b>c</b>	<b>PAX5</b>	(K75 K76 K77 K79)	Chemicals 1 Isocyanates (TDI, MDI, HDI), Phthalic anhydride
<b>c</b>	<b>PAX6</b>	(K78 K79 K80 K85)	Chemicals 2 Ethylene oxide, Phthalic anhydride, Formaldehyde, Chloramin T

## ESOTERIC INDIVIDUAL ALLERGENS

**e** Esoteric individual allergens, \$12 each

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MITES (HOUSE DUST & STORAGE)	
<b>e</b>	<b>D3</b> <i>Dermatophagoides microceras</i>

ANIMAL & AVIAN PROTEINS	
<b>e</b>	<b>E70</b> Goose feathers
<b>e</b>	<b>E72</b> Mouse urine proteins
<b>e</b>	<b>E74</b> Rat urine proteins
<b>e</b>	<b>E75</b> Rat serum proteins
<b>e</b>	<b>E76</b> Mouse serum proteins
<b>e</b>	<b>E80</b> Goat epithelium
<b>e</b>	<b>E83</b> Swine epithelium
<b>e</b>	<b>E84</b> Hamster epithelium
<b>e</b>	<b>E86</b> Duck feathers
<b>e</b>	<b>E87</b> Rat epithelium, serum & urine proteins

<b>e</b>	<b>E88</b> Mouse epithelium, serum & urine proteins
<b>e</b>	<b>E89</b> Turkey feathers
<b>e</b>	<b>E196</b> Parakeet feathers
<b>e</b>	<b>E197</b> Parakeet droppings
<b>e</b>	<b>E198</b> Parakeet serum
<b>e</b>	<b>E199</b> Canary bird serum
<b>e</b>	<b>E200</b> Canary bird droppings
<b>e</b>	<b>E202</b> Reindeer epithelium
<b>e</b>	<b>E203</b> Mink epithelium
<b>e</b>	<b>E204</b> BSA (bovine serum albumin)
<b>e</b>	<b>E205</b> Horse serum proteins
<b>e</b>	<b>E206</b> Rabbit serum proteins
<b>e</b>	<b>E208</b> Chinchilla epithelium
<b>e</b>	<b>E209</b> Gerbil epithelium

<b>e</b>	<b>E210</b> Fox epithelium
<b>e</b>	<b>E211</b> Rabbit urine proteins
<b>e</b>	<b>E214</b> Finch feathers
<b>e</b>	<b>E216</b> Deer epithelium
<b>e</b>	<b>E217</b> Ferret epithelium
<b>e</b>	<b>E218</b> Chicken droppings
<b>e</b>	<b>E219</b> Chicken serum proteins
<b>e</b>	<b>E220</b> Cat serum albumin
<b>e</b>	<b>E221</b> Dog serum albumin
<b>e</b>	<b>E222</b> Swine serum albumin

PARASITES	
<b>e</b>	<b>P2</b> Echinococcus

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MISCELLANEOUS	
e <b>O201</b>	Tobacco leaf
e <b>O202</b>	<i>Artemia salina</i> fish feed
e <b>O203</b>	Tetramin fish feed
e <b>O207</b>	Daphnia fish feed
e <b>O211</b>	Mealworm <i>Tenebrio molitor</i>
e <b>O212</b>	Streptavidin

e <b>T212</b>	Cedar
e <b>T213</b>	Pine
e <b>T214</b>	Date
e <b>T217</b>	Peppertree
e <b>T218</b>	Virginia live oak
e <b>T222</b>	Cypress
e <b>T223</b>	Oil palm

e <b>M208</b>	<i>Chaetomium globosum</i>
e <b>M211</b>	<i>Trichophyton ment. var. interdigitale</i>
e <b>M226</b>	Staphylococcus enterotoxin TSST
e <b>M223</b>	Staphylococcus enterotoxin C
e <b>M228</b>	<i>Aspergillus flavus</i>

GRASS & GRAIN POLLENS	
e <b>G3</b>	Cocksfoot
e <b>G7</b>	Common reed
e <b>G9</b>	Redtop (Bentgrass)
e <b>G12</b>	Cultivated rye
e <b>G13</b>	Velvet grass
e <b>G14</b>	Cultivated oat
e <b>G16</b>	Meadow foxtail
e <b>G70</b>	Wild rye grass
e <b>G71</b>	Canary grass
e <b>G201</b>	Barley
e <b>G202</b>	Maize (Corn)
e <b>G203</b>	Salt grass
e <b>G204</b>	False oat-grass

WEED & CROP POLLENS	
e <b>W2</b>	Western ragweed
e <b>W3</b>	Giant ragweed
e <b>W7</b>	Ox-eye daisy
e <b>W8</b>	Dandelion
e <b>W11</b>	Saltwort (Russian thistle)
e <b>W12</b>	Golden rod
e <b>W13</b>	Cocklebur
e <b>W14</b>	Common pigweed
e <b>W15</b>	Scale Lenscale
e <b>W16</b>	Rough marshelder
e <b>W17</b>	Firebush
e <b>W19</b>	<i>Parietaria officinalis</i>
e <b>W20</b>	Nettle
e <b>W22</b>	Japanese Hop
e <b>W23</b>	Yellow dock
e <b>W45</b>	Alfalfa
e <b>W46</b>	Dog fennel
e <b>W82</b>	Careless weed
e <b>W203</b>	Rape (Canola)
e <b>W204</b>	Sunflower
e <b>W206</b>	Camomille
e <b>W207</b>	Lupin
e <b>W210</b>	Sugar-beet

OCCUPATIONALS	
e <b>K70</b>	Green coffee bean
e <b>K71</b>	Castor bean
e <b>K72</b>	Ispaghula
e <b>K73</b>	Silk waste
e <b>K74</b>	Silk
e <b>K78</b>	Ethylene oxide
e <b>K79</b>	Phthalic anhydride
e <b>K81</b>	Ficus spp.
e <b>K83</b>	Cotton seed
e <b>K85</b>	Chloramin T
e <b>K86</b>	Trimellitic Anhydride (TMA)
e <b>K87</b>	Alpha-amylase
e <b>K201</b>	Papain
e <b>K202</b>	Bromelin
e <b>K203</b>	Phosphlipase
e <b>K204</b>	Maxatase
e <b>K205</b>	Alkalase
e <b>K206</b>	Savinase
e <b>K208</b>	Lysozyme
e <b>K209</b>	Hexahydroptalic anhydrid
e <b>K211</b>	MTHP Anhydrid
e <b>K212</b>	Abachi wood dust
e <b>K213</b>	Pepsin
e <b>K214</b>	Bougainvillea spp.

TREE POLLENS	
e <b>T1</b>	Box-elder
e <b>T2</b>	Grey alder
e <b>T4</b>	Hazel
e <b>T5</b>	American beech
e <b>T6</b>	Mountain juniper
e <b>T10</b>	Walnut
e <b>T12</b>	Willow
e <b>T14</b>	Cottonwood
e <b>T20</b>	Mesquite
e <b>T22</b>	Pecan Hickory
e <b>T25</b>	European ash
e <b>T37</b>	Bald cypress
e <b>T41</b>	White hickory
e <b>T44</b>	Hackberry
e <b>T45</b>	Cedar elm
e <b>T54</b>	Russian olive
e <b>T55</b>	Scotch broom
e <b>T56</b>	Bayberry
e <b>T70</b>	Mulberry
e <b>T71</b>	Red mulberry
e <b>T72</b>	Queen Palm
e <b>T201</b>	Spruce
e <b>T203</b>	Horse chestnut
e <b>T205</b>	Elder
e <b>T206</b>	Chestnut
e <b>T207</b>	Douglas fir
e <b>T208</b>	Linden
e <b>T209</b>	Horn beam
e <b>T211</b>	Sweet gum

DRUGS	
e <b>C8</b>	Chlorhexidine
e <b>C70</b>	Insulin porcine
e <b>C71</b>	Insulin bovine
e <b>C202</b>	Suxamethonium (Succinylcholine)
e <b>C208</b>	Tetanus toxoid

VENOMS	
e <b>I2</b>	White-faced hornet ( <i>Dolichovespula maculata</i> )
e <b>I77</b>	European paper wasp ( <i>Polistes dominulus</i> )
e <b>I75</b>	European Hornet ( <i>Vespa crabro</i> )
e <b>I205</b>	Bumblebee

MOULDS, YEASTS & TOXINS	
e <b>M7</b>	<i>Botrytis cinerea</i>
e <b>M11</b>	<i>Rhizopus nigricans</i>
e <b>M12</b>	<i>Aureobasidium pullulans</i>
e <b>M16</b>	<i>Curvularia lunata</i>
e <b>M36</b>	<i>Aspergillus terreus</i>
e <b>M81</b>	<i>Staphylococcus enterotoxin B</i>
e <b>M201</b>	<i>Tilletia tritici</i>
e <b>M203</b>	<i>Trichosporon pullulans</i>
e <b>M204</b>	<i>Ulocladium chartarum</i>
e <b>M207</b>	<i>Aspergillus niger</i>
e <b>M209</b>	<i>Penicillium frequentans</i>

INSECTS	
e <b>I8</b>	Moth
e <b>I73</b>	Blood worm
e <b>I76</b>	Berlin beetle
e <b>I201</b>	Horse bot fly
e <b>I203</b>	Mediterranean Flour Moth
e <b>I204</b>	Horse fly
e <b>I206</b>	Cockroach, American
e <b>I207</b>	Cockroach, Oriental

## ESOTERIC INDIVIDUAL FOOD ALLERGENS

e Esoteric individual food allergens, \$12 each

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FOOD	
e <b>F42</b>	Haddock
e <b>F50</b>	Chub (mackerel)
e <b>F51</b>	Bamboo shoot
e <b>F54</b>	Sweet potato
e <b>F55</b>	Common millet
e <b>F56</b>	Foxtail millet
e <b>F57</b>	Japanese millet
e <b>F58</b>	Pacific squid
e <b>F60</b>	Jack mackerel (Scad)
e <b>F61</b>	Sardine (Japanese) Pilchard
e <b>F124</b>	Spelt wheat
e <b>F147</b>	Gulf flounder
e <b>F182</b>	Lima bean
e <b>F205</b>	Herring
e <b>F206</b>	Mackerel
e <b>F213</b>	Rabbit meat
e <b>F217</b>	Brussel sprouts
e <b>F219</b>	Fennel seed
e <b>F227</b>	Sugar-beet seed
e <b>F231</b>	Milk boiled
e <b>F234</b>	Vanilla
e <b>F236</b>	Cow's whey
e <b>F245</b>	Egg
e <b>F246</b>	Guar, guar gum (E412)
e <b>F254</b>	Plaice
e <b>F264</b>	Eel
e <b>F265</b>	Caraway
e <b>F266</b>	Mace
e <b>F268</b>	Clove
e <b>F269</b>	Basil
e <b>F271</b>	Anise

e <b>F272</b>	Tarragon
e <b>F273</b>	Thyme
e <b>F274</b>	Marjoram
e <b>F275</b>	Lovage
e <b>F276</b>	Fennel fresh
e <b>F277</b>	Dill
e <b>F278</b>	Bay leaf
e <b>F283</b>	Oregano
e <b>F285</b>	Elk-Moose meat
e <b>F286</b>	Mare's Milk
e <b>F288</b>	Blueberry
e <b>F289</b>	Date
e <b>F292</b>	Guava
e <b>F295</b>	Carambola
e <b>F296</b>	Carob (E410)
e <b>F297</b>	Gum arabic (E414)
e <b>F298</b>	Tragacanth (E413)
e <b>F301</b>	Persimmon
e <b>F303</b>	Halibut
e <b>F304</b>	Langust (spiny lobster)
e <b>F305</b>	Fenugreek
e <b>F306</b>	Lime
e <b>F307</b>	Hake
e <b>F308</b>	Sardine(Pilchard)
e <b>F310</b>	Blue vetch
e <b>F311</b>	Megrim
e <b>F312</b>	Swordfish
e <b>F313</b>	Anchovy
e <b>F314</b>	Snail
e <b>F316</b>	Rape (Canola) seed
e <b>F318</b>	Jack fruit
e <b>F319</b>	Beetroot

e <b>F320</b>	Crayfish
e <b>F321</b>	Horse meat
e <b>F325</b>	Sheep milk
e <b>F326</b>	Sheep whey
e <b>F328</b>	Fig
e <b>F330</b>	Rose hip
e <b>F331</b>	Saffron
e <b>F332</b>	Mint
e <b>F334</b>	Bovine lactoferrin
e <b>F336</b>	Jujube
e <b>F337</b>	Sole
e <b>F339</b>	Allspice
e <b>F342</b>	Olive (black fresh)
e <b>F343</b>	Raspberry
e <b>F344</b>	Sage
e <b>F348</b>	Lychee
e <b>F369</b>	Catfish
e <b>F381</b>	Red Snapper
e <b>F384</b>	Whitefish
e <b>F410</b>	Grouper
e <b>F412</b>	Orange roughy
e <b>F413</b>	Pollock
e <b>F414</b>	Tilapia
e <b>F415</b>	Walleye pike



## ESOTERIC ALLERGEN MIXES

e Esoteric mixed allergens \$12 each

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ANIMAL MIXES			
e <b>EX70</b>	(E6 E82 E84 E87 E88)	Animal Mix 3	Guinea pig epithelium, Rabbit epithelium, Hamster epithelium, Rat, Mouse
e <b>EX73</b>	(E70 E85 E86 E213)	Animal Mix 4	Goose feathers, Chicken feathers, Duck feathers, Parrot feathers

e <b>GX4</b>	(G1 G5 G7 G12 G13)	Grass Mix 4	Sweet Vernal grass, Rye grass, Common reed, Cultivated rye, Velvet grass
e <b>GX6</b>	(G2 G5 G10 G11 G13 G17)	Grass Mix 6	Bermuda grass, Rye grass, Johnson grass, Brome grass, Velvet grass, Bahia grass

GRASS MIXES			
e <b>GX1</b>	(G3 G4 G5 G6 G8)	Grass Mix 1	Cocksfoot, Meadow Fescue, Rye grass, Timothy grass, Meadow grass
e <b>GX3</b>	(G1 G5 G6 G12 G13)	Grass Mix 3	Sweet Vernal grass, Rye grass, Timothy grass, Cultivated Rye, Velvet grass

COMBINATION INHALANT MIXES			
e <b>RX1</b>	(G6 W6 W9 W21 T3)	Inhalant 1	Timothy grass, Mugwort, English Plantain, Parietaria, Birch
e <b>RX2</b>	(D2 E1 E3 E5 M6)	Inhalant 2	<i>Dermatophagoides farinae</i> , Cat dander, Horse dander, Dog dander, <i>Alternaria alternata</i>



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e	<b>RX3</b>	(G2 G5 G17 W1 W9 W10)	Inhalant 3	Bermuda grass, Rye grass, Bahia grass, Common Ragweed, English Plantain, Goosefoot Lamb's Quarters
e	<b>RX4</b>	(G2 G5 G1 W1 W6 W9)	Inhalant 4	Sweet Vernal grass, Bermuda grass, Rye grass, Common Ragweed, Mugwort, English Plantain,
e	<b>RX5</b>	(D1 E1 M3 I6)	Inhalant 5	<i>Dermatophagoides pteronyssinus</i> , Cat dander, <i>Aspergillus fumigatus</i> , Cockroach
e	<b>RX6</b>	(T3 G6 W6 M2 M6)	Inhalant 6	Birch, Timothy grass, Mugwort, <i>Cladosporium</i> , <i>Alternaria alternata</i>
e	<b>RX7</b>	(D1 E1 E3 E5 E82)	Inhalant 7	<i>Dermatophagoides pteronyssinus</i> , Cat dander, Horse dander, Dog dander, Rabbit epithelium

### TREE MIXES

e	<b>TX1</b>	(T1 T3 T7 T8 T10)	Tree Mix 1	Box elder, Birch, Oak, Elm, Walnut
e	<b>TX2</b>	(T1 T7 T8 T14 T22)	Tree Mix 2	Box elder, Oak, Elm, Cottonwood, Pecan Hickory
e	<b>TX3</b>	(T6 T7 T8 T14 T20)	Tree Mix 3	Mountain Juniper, Oak, Elm, Cottonwood, Mesquite
e	<b>TX4</b>	(T7 T8 T11 T12 T14)	Tree Mix 4	Oak, Elm, Sycamore, Willow, Cottonwood
e	<b>TX5</b>	(T2 T4 T8 T12 T14)	Tree Mix 5	Grey Alder, Hazel, Elm, Willow, Cottonwood
e	<b>TX6</b>	(T1 T3 T5 T7 T10)	Tree Mix 6	Box elder, Birch, American Beech, Oak, Walnut
e	<b>TX8</b>	(T1 T3 T4 T7 T11)	Tree Mix 8	Box elder, Birch, Hazel, Oak, Sycamore
e	<b>TX9</b>	(T2 T3 T4 T7 T12)	Tree Mix 9	Grey Alder, Birch, Hazel, Oak, Willow
e	<b>TX10</b>	(T2 T3 T4 T15)	Tree Mix 10	Grey Alder, Birch, White Ash

### WEED MIXES

e	<b>WX2</b>	(W2 W6 W9 W10 W15)	Weed Mix 2	Western ragweed, Mugwort, English Plantain, Goosefoot Lamb's Quarters, Scale Lenscale
e	<b>WX3</b>	(W6 W9 W10 W12 W20)	Weed Mix 3	Mugwort, English Plantain, Goosefoot Lamb's Quarters, Golden rod, Nettle
e	<b>WX6</b>	(W9 W10 W11 W18)	Weed Mix 6	English Plantain, Goosefoot Lamb's Quarters, Saltwort Russian Thistle, Sheep sorrel
e	<b>WX7</b>	(W7 W8 W9 W10 W12)	Weed Mix 7	Ox-eye Daisy, Dandelion, English Plantain, Goosefoot Lamb's Quarters, Golden rod
e	<b>WX209</b>	(W1 W2 W3)	Weed Mix 209	Common ragweed, Western ragweed, Giant ragweed

### MOULD MIXES

e	<b>MX1</b>	(M1 M2 M3 M6)	Mould Mix 1	<i>Penicillium chrysogenum</i> , <i>Cladosporium herbarum</i> , <i>Aspergillus fumigatus</i> , <i>Alternaria alternata</i>
e	<b>MX4</b>	(M3 M207 M36 M228)	Mould Mix 4	<i>A. fumigatus</i> , <i>A. niger</i> , <i>A. terreus</i> , <i>A. flavus</i>

### FOOD MIXES

e	<b>FX7</b>	(F25 F45 F47 F48 F85)	Food Mix 7	Tomato, Yeast, Garlic, Onion, Celery
e	<b>FX8</b>	(F17 F18 F33 F49 F93)	Food Mix 8	Hazel nut, Brazil nut, Orange, Apple, Cacao
e	<b>FX9</b>	(F20 F84 F87 F92 F259)	Food Mix 9	Almond, Kiwi, Melons, Banana, Grape
e	<b>FX10</b>	(F26 F27 F75 F83 F284)	Food Mix 10	Pork, Beef, Egg yolk, Chicken, Turkey
e	<b>FX11</b>	(F8 F12 F15 F31 F260)	Food Mix 11	Maize, Pea, White bean, Carrot, Broccoli
e	<b>FX12</b>	(F5 F9 F35 F225 RF212)	Food Mix 12	Rye, Rice, Potato, Mushroom, Pumpkin
e	<b>FX13</b>	(F12 F15 F31 F35)	Food Mix 13	Pea, White bean, Carrot, Potato
e	<b>FX14</b>	(F25 F214 F216 F218)	Food Mix 14	Tomato, Spinach, Cabbage, Paprika
e	<b>FX16</b>	(F44 F94 F208 F210)	Food Mix 16	Strawberry, Pear, Lemon, Pineapple
e	<b>FX17</b>	(F49 F92 F94 F95)	Food Mix 17	Apple, Banana, Pear, Peach
e	<b>FX18</b>	(F12 F13 F14)	Food Mix 18	Pea, Peanut, Soybean
e	<b>FX20</b>	(F4 F5 F6 F9)	Food Mix 20	Wheat, Rye, Barley, Rice
e	<b>FX21</b>	(F84 F87 F92 F95 F210)	Food Mix 21	Kiwi fruit, Melon, Banana, Peach, Pineapple
e	<b>FX22</b>	(F201 F202 F203 F256)	Food Mix 22	Pecan nut, Cashew nut, Pistachio, Walnut
e	<b>FX23</b>	(F26 F27 F83 F284)	Food Mix 23	Pork, Beef, Chicken meat, Turkey meat
e	<b>FX24</b>	(F17 F24 F84 F92)	Food Mix 24	Hazel nut, Shrimp, Kiwi fruit, Banana
e	<b>FX25</b>	(F10 F45 F47 F85)	Food Mix 25	Sesame seed, Yeast, Garlic, Celery
e	<b>FX26</b>	(F1 F2 F13 F89)	Food Mix 26	Egg white, Cow's milk, Peanut, Mustard
e	<b>FX27</b>	(F3 F4 F14 F17)	Food Mix 27	Fish (cod), Wheat, Soybean, Hazel nut
e	<b>FX28</b>	(F10 F24 F27 F84)	Food Mix 28	Sesame seed, Shrimp, Beef, Kiwi
e	<b>FX29</b>	(F33 F208 F209 F302)	Food Mix 29	Orange, Lemon, Grapefruit, Mandarin
e	<b>FX30</b>	(F84 F91 F92 F293)	Food Mix 30	Kiwi, Mango, Banana, Avocado, Papaya
e	<b>FX31</b>	(F49 F94 F95 F242 F255)	Food Mix 31	Apple, Pear, Peach, Cherry, Plum
e	<b>FX32</b>	(F235 F12 F15 RF296)	Food Mix 32	Lentil, Pea, White bean, Carob
e	<b>FX74</b>	(F3 F205 F206 F254)	Food Mix 74	Cod, Herring, Mackerel, Plaice

### OCCUPATIONAL MIXES

e	<b>PAX1</b>	(E3 E4 E70 E85)		Horse & Cow dander, Goose & Chicken feathers
e	<b>PAX3</b>	(M3 M6 G12 G15)		<i>Aspergillus</i> , <i>Alternaria</i> , Wheat & Rye pollen
e	<b>PAX4</b>	(F4 F14 K87 I202)		Wheat & Soy flour, alpha-amylase, <i>Sitophilus granarius</i>

## RECOMBINANT AND NATIVE INDIVIDUAL ALLERGEN MOLECULES

n	Individual Native (n) \$40 each
r	Recombinant (r) allergen molecules \$40 each

ANIMALS		
r	E94	rFel d1 (recombinant cat)
r	E220	nFel d 2 Cat serum albumin <i>Felis domesticus</i>
r	E101	rCan f1 (recombinant dog)
r	E102	rCan f2 (recombinant dog)
n	E221	nCan f 3 Dog serum albumin <i>Canis familiaris</i>
n	E204	nBos d 6 BSA, Cow Bos spp.
n	E222	nSus s Pig serum albumin, Swine <i>Sus scrofa</i>

GRASSES		
r	G205	rPhl p 1 (recombinant timothy)
r	G206	rPhl p 2 (recombinant timothy)
r	G208	rPhl p 4 (native timothy)
r	G209	rPhl p 6 (recombinant timothy)
r	G210	rPhl p 7 (recombinant timothy)
r	G211	rPhl p 11 (recombinant timothy)
r	G212	rPhl p 12 (recombinant timothy)
r	G213	rPhl p1; rPhl p5b (recombinant timothy)
r	G214	rPhl p7; rPhl p12 (recombinant timothy)
r	G215	rPhl p 5b (recombinant timothy)
n	G216	nCyn d 1 Bermuda grass, <i>Cynodon dactylon</i>

FOODS		
c	F76	nBos d 4 a-lactalbumin, Milk Bos spp.
c	F77	nBos d 5 b-lactoglobulin, Milk Bos spp.
c	F78	nBos d 8 Casein, Milk Bos spp.

c Core individual allergens, \$4 each  
**Note:** These allergens are priced as core individual allergens (\$4 ea)

FOODS		
n	F232	nGal d 2 Ovalbumin, Egg Gallus spp.
n	F233	nGal d 1 Ovomucoid, Egg Gallus spp.
n	F323	nGal d 3 Conalbumin, Egg Gallus spp.

n	F334	nBos d Lactoferrin, Milk Bos spp.
r	F351	rPen a 1 Tropomyosin, Shrimp <i>Penaeus aztecus</i>
r	F353	rGly m 4 PR-10, Soy Glycine
r	F354	rBer e 1 Brazil nut, <i>Bertholletia excelsa</i>
r	F355	rCyp c 1 Carp <i>Cyprinus carpio</i>
r	F417	rApi g 1.01 PR-10, Celery <i>Apium graveolens</i>
r	F418	rApi g 1.02 (recombinant Celery)
r	F419	rPru p 1 PR-10, Peach <i>Prunus persica</i>
r	F420	rPru p 3 LTP, Peach <i>Prunus persica</i>
r	F421	rPru p 4 Profilin, Peach <i>Prunus persica</i>
r	F416	rTri a 19 Omega-5 Gliadin, Wheat <i>Triticum</i> spp.
r	F422	rAra h 1 Peanut <i>Arachis hypogaea</i>
r	F423	rAra h 2 Peanut <i>Arachis hypogaea</i>
r	F424	rAra h 3 Peanut <i>Arachis hypogaea</i>
r	F352	rAra h 8 PR-10, Peanut <i>Arachis hypogaea</i>
r	F427	rAra h 9 LTP, Peanut <i>Arachis hypogaea</i>
r	F425	rCor a 8 LTP, Hazel nut <i>Corylus avellana</i>
r	F426	rGad c 1 Cod <i>Gadus morhua</i>
r	F428	rCor a 1 PR-10, Hazel nut <i>Corylus avellana</i>

TREES		
r	T215	rBet v 1 PR-10, Birch <i>Betula verrucosa</i>
r	T216	rBet v 2 Profilin, Birch <i>Betula verrucosa</i>
r	T220	rBet v 4, Birch <i>Betula verrucosa</i>
r	T221	rBet v 2, rBet v 4 Birch <i>Betula verrucosa</i>
r	T225	rBet v 6 Birch <i>Betula verrucosa</i>
n	T224	nOle e 1 Olive <i>Olea europaea</i>

WEEDS		
r	W211	rPar j 2 (recombinant parietaria)
n	W230	nAmb a 1, Ragweed <i>Ambrosia elatior</i>
n	W231	nArt v 1, Mugwort <i>Artemisia vulgaris</i>

MOULDS		
r	M218	rAsp f1 (recombinant aspergillus)
r	M219	rAsp f2 (recombinant aspergillus)
r	M220	rAsp f 3 (recombinant aspergillus)
r	M221	rAsp f4 (recombinant aspergillus)
r	M222	rAsp f6 (recombinant aspergillus)
r	M229	rAlt a 1 (component alternaria)

LATEX		
r	K215	rHev b 1, Latex <i>Hevea brasiliensis</i>
r	K217	rHev b 3, Latex <i>Hevea brasiliensis</i>
r	K218	rHev b 5, Latex <i>Hevea brasiliensis</i>
r	K219	rHev b 6.01, Latex <i>Hevea brasiliensis</i>
r	K220	rHev b 6.02, Latex <i>Hevea brasiliensis</i>
r	K221	rHev b 8, Profilin, Latex <i>Hevea brasiliensis</i>
r	K222	rHev b 9, Latex <i>Hevea brasiliensis</i>
r	K224	rHev b 11, Latex <i>Hevea brasiliensis</i>

VENOM		
n	K203	nApi m 1, Phospholipase A2, Bee <i>Apis mellifera</i>

OCCUPATIONAL ALLERGENS		
n	K205	Alkalase, <i>Bacillus</i> spp.
n	K87	nAsp o 1, a-amylase <i>Aspergillus oryzae</i>
n	K201	nCar p 1, Papain, Papaya <i>Carica papaya</i>
n	K208	nGal d 4, Lysozyme, Egg Gallus spp.
n	K204	Maxatase, <i>Bacillus licheniformis</i>
n	K206	Savinase, <i>Bacillus</i> spp.
n	K213	nSus s Pepsin, Swine <i>Sus scrofa</i>

OTHERS (to exclude CCD reactivity)		
n	Ro214	MUXF3 CCD, Bromelin
n	K202	nAna c 2 Bromelin, Pineapple <i>Ananas comosus</i>

## ImmunoCAP ISAC® (\$350 per profile)

The ISAC (Immuno Solid-phase Allergen Chip) is a microarray system developed by VBC Genomics and Phadia. ISAC can now allow laboratories to reliably and simultaneously determine specific IgE levels to a wide range of clinically important individual allergen molecules more economically than using many individual recombinant CAP allergens.

Clinical studies have shown that, for example, even modest levels of serum specific IgE level to ara h 2, one of the nine major peanut allergens, are strongly predictive of more severe reactions and poor tolerance of oral challenges. Similarly, modest levels of serum specific IgE to ovomucoid, an egg allergen which is heat resistant, are strongly predictive of poor tolerance to even cooked egg in a baked cake; the first challenge usually used by allergy clinics when one is confident that a child might be starting to lose their egg allergy.

The ISAC profiles are performed in batches, and the results are reported semi-quantitatively and organised into both the individual allergen molecule source, as well as the protein group from which it comes. These protein groups have particular patterns of clinical significance. For example, specific IgE to Lipid Transfer Proteins are often associated with systemic and more severe reactions in addition to oral allergy symptoms and these molecules are usually not altered with food preparation and cooking (enzyme digestion and heat). Similarly, seed storage proteins are also heat resistant and often associated with significant symptoms with cooked foods. In contrast, PR-10 proteins are heat labile and are associated with oral allergy symptoms with the raw, rather than cooked foods. Similarly, heat sensitive profilin proteins are more associated with nuisance rather than severe symptoms. Tropomyosin proteins account for dustmite-crustacean cross-reactivity. Animal albumins and fish parvalbumins are important causes of other food reactions.

A table of the allergens included in the ISAC profile is shown opposite.

## ImmunoCAP ISAC® Allergen Components

Allergen Component      Allergen Source      Protein Group

COMMON NAME      LATIN NAME

PLANTS			
<b>nCyn d 1</b>	Bermuda grass	<i>Cynodon dactylon</i>	Grass group 1
<b>rPhl p 1</b>	Timothy	<i>Phleum pratense</i>	Grass group 1
<b>rPhl p 2</b>	Timothy	<i>Phleum pratense</i>	Grass group 2
<b>nPhl p 4</b>	Timothy	<i>Phleum pratense</i>	
<b>rPhl p 5</b>	Timothy	<i>Phleum pratense</i>	Grass group 5
<b>rPhl p 6</b>	Timothy	<i>Phleum pratense</i>	
<b>rPhl p 11</b>	Timothy	<i>Phleum pratense</i>	
<b>rBet v 1</b>	Birch	<i>Betula verrucosa</i>	PR-10 protein
<b>rAln g 1</b>	Alder	<i>Alnus glutinosa</i>	PR-10 protein
<b>rCor a 1.0101</b>	Hazel pollen	<i>Corylus avellana</i>	PR-10 protein
<b>nCry j 1</b>	Japanese cedar	<i>Cryptomeria japonica</i>	
<b>nCup a 1</b>	Cypress	<i>Cupressus arizonica</i>	
<b>nOle e 1</b>	Olive	<i>Olea europaea</i>	
<b>rPla a 1</b>	Plane tree	<i>Platanus acerifolia</i>	
<b>nPla a 2</b>	Plane tree	<i>Platanus acerifolia</i>	
<b>nAmb a 1</b>	Ragweed	<i>Ambrosia artemisiifolia</i>	
<b>nArt v 1</b>	Mugwort	<i>Artemisia vulgaris</i>	
<b>nArt v 3</b>	Mugwort	<i>Artemisia vulgaris</i>	Lipid transfer protein (nsLTP)
<b>rPar j 2</b>	Wall pellitory	<i>Parietaria Judaica</i>	Lipid transfer protein (nsLTP)
<b>nSal k 1</b>	Saltwort	<i>Salsola kali</i>	
<b>nAct d 1</b>	Kiwi	<i>Actinidia deliciosa</i>	
<b>nAct d 2</b>	Kiwi	<i>Actinidia deliciosa</i>	
<b>nAct d 5</b>	Kiwi	<i>Actinidia deliciosa</i>	
<b>nAct d 8</b>	Kiwi	<i>Actinidia deliciosa</i>	PR-10 protein
<b>rApi g 1</b>	Celery	<i>Apium graveolens</i>	PR-10 protein
<b>rDau c 1</b>	Carrot	<i>Daucus carota</i>	PR-10 protein
<b>rMal d 1</b>	Apple	<i>Malus domestica</i>	PR-10 protein
<b>rPru p 1</b>	Peach	<i>Prunus persica</i>	PR-10 protein
<b>nPru p 3</b>	Peach	<i>Prunus persica</i>	Lipid transfer protein (nsLTP)
<b>rAna o 2</b>	Cashew nut	<i>Anacardium occidentale</i>	
<b>nAra h 1</b>	Peanut	<i>Arachis hypogaea</i>	Storage protein, vicilin
<b>nAra h 2</b>	Peanut	<i>Arachis hypogaea</i>	Storage protein, Conglutin
<b>nAra h 3</b>	Peanut	<i>Arachis hypogaea</i>	Storage protein, 11S globulin
<b>rAra h 8</b>	Peanut	<i>Arachis hypogaea</i>	PR-10 protein
<b>rBer e 1</b>	Brazil nut	<i>Bertholletia excelsa</i>	Storage protein, 2S albumin
<b>rCor a 1.0401</b>	Hazelnut	<i>Corylus avellana</i>	PR-10 protein
<b>rCor a 8</b>	Hazelnut	<i>Corylus avellana</i>	Lipid transfer protein (nsLTP)
<b>nCor a 9</b>	Hazelnut	<i>Corylus avellana</i>	Storage protein, 11S globulin
<b>rGly m 4</b>	Soybean	<i>Glycine max</i>	PR-10 protein
<b>nGly m 5</b>	Soybean	<i>Glycine max</i>	Storage protein, b-conglycinin
<b>nGly m 6</b>	Soybean	<i>Glycine max</i>	Storage protein, glycinin
<b>nSes i 1</b>	Sesame seed	<i>Sesamum indicum</i>	Storage protein, 2S albumin
<b>nTri a 18</b>	Wheat	<i>Triticum aestivum</i>	
<b>nTri a gliadin</b>	Wheat	<i>Triticum aestivum</i>	Crude gliadin
<b>rTri a 19.0101</b>	Wheat	<i>Triticum aestivum</i>	Omega-5 gliadin
<b>nTri a aA_TI</b>	Wheat	<i>Triticum aestivum</i>	
<b>rHev b 1</b>	Latex	<i>Hevea brasiliensis</i>	
<b>rHev b 3</b>	Latex	<i>Hevea brasiliensis</i>	
<b>rHev b 5</b>	Latex	<i>Hevea brasiliensis</i>	
<b>rHev b 6</b>	Latex	<i>Hevea brasiliensis</i>	

### CROSS REACTIVE MARKERS, PLANTS

<b>rBet v 4</b>	Birch	<i>Betula verrucosa</i>	Calcium binding protein, Polcalcin
<b>rPhl p 7</b>	Timothy	<i>Phleum pratense</i>	Calcium binding protein, Polcalcin
<b>rBet v 2</b>	Birch	<i>Betula verrucosa</i>	Profilin
<b>rHev b 8</b>	Latex	<i>Hevea brasiliensis</i>	Profilin
<b>rMer a 1</b>	Annual mercury	<i>Mercurialis annua</i>	Profilin
<b>nOle e 2</b>	Olive	<i>Olea europaea</i>	Profilin
<b>rPhl p 12</b>	Timothy	<i>Phleum pratense</i>	Profilin
<b>nAna c 2</b>	Bromelain	<i>Ananas comosus</i>	CCD marker

## ImmunoCAP ISAC® Allergen Components

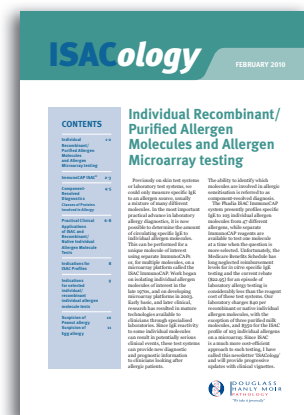
Allergen Component      Allergen Source      Protein Group

COMMON NAME      LATIN NAME

NON-PLANTS			
<b>nBos d 6</b>	BSA	<i>Bos domesticus</i>	Serum albumin
<b>nBos d 8</b>	Cow's milk	<i>Bos domesticus</i>	Caseins
<b>nBos d</b>	lactoferrin	<i>Bos domesticus</i>	Laktoferrin
<b>nGal d 1</b>	Egg	<i>Gallus domesticus</i>	Ovomucoid
<b>nGal d 2</b>	Egg	<i>Gallus domesticus</i>	Ovalbumin
<b>nGal d 3</b>	Egg	<i>Gallus domesticus</i>	Conalbumin
<b>nGal d 5</b>	CSA (Livetin)	<i>Gallus domesticus</i>	Serum albumin
<b>rCyp c 1</b>	Carp	<i>Cyprinus carpio</i>	Parvalbumin
<b>rGad c 1</b>	Cod	<i>Gadus callarias</i>	Parvalbumin
<b>rDer f 1</b>	House dust mite	<i>Dermatophagoides farinae</i>	
<b>rDer f 2</b>	House dust mite	<i>Dermatophagoides farinae</i>	
<b>nDer p 1</b>	House dust mite	<i>Dermatophagoides pteronyssinus</i>	
<b>nDer p 2</b>	House dust mite	<i>Dermatophagoides pteronyssinus</i>	
<b>rEur m 2</b>	Storage mite	<i>Euroglyphus maynei</i>	
<b>rCan f 1</b>	Dog	<i>Canis familiaris</i>	Lipocalin
<b>rCan f 2</b>	Dog	<i>Canis familiaris</i>	Lipocalin
<b>nCan f 3</b>	Dog	<i>Canis familiaris</i>	Serum albumin
<b>nEqu c 3</b>	Horse	<i>Equus caballus</i>	Serum albumin
<b>rFel d 1</b>	Cat	<i>Felis domesticus</i>	Uteroglobulin
<b>nFel d 2</b>	Cat	<i>Felis domesticus</i>	Serum albumin
<b>nMus m 1</b>	Mouse	<i>Mus musculus</i>	Lipocalin
<b>rAlt a 1</b>	Alternaria	<i>Alternaria alternata</i>	
<b>rAlt a 6</b>	Alternaria	<i>Alternaria alternata</i>	
<b>rAsp f 1</b>	Aspergillus	<i>Aspergillus fumigatus</i>	
<b>rAsp f 2</b>	Aspergillus	<i>Aspergillus fumigatus</i>	
<b>rAsp f 3</b>	Aspergillus	<i>Aspergillus fumigatus</i>	
<b>rAsp f 4</b>	Aspergillus	<i>Aspergillus fumigatus</i>	
<b>rAsp f 6</b>	Aspergillus	<i>Aspergillus fumigatus</i>	
<b>rCla h 8</b>	Cladosporium	<i>Cladosporium herbarum</i>	
<b>nApi m 1</b>	Honey bee venom	<i>Apis mellifera</i>	Phospholipase A2
<b>nApi m 4</b>	Honey bee venom	<i>Apis mellifera</i>	Melittin
<b>rBla g 1</b>	Cockroach	<i>Blattella germanica</i>	
<b>rBla g 2</b>	Cockroach	<i>Blattella germanica</i>	
<b>rBla g 4</b>	Cockroach	<i>Blattella germanica</i>	
<b>rBla g 5</b>	Cockroach	<i>Blattella germanica</i>	
<b>rAni s 1</b>	Anisakis	<i>Anisakis simplex</i>	

### CROSS REACTIVE MARKERS, NON-PLANTS

<b>rAni s 3</b>	Anisakis	<i>Anisakis simplex</i>	Tropomyosin
<b>nBla g 7</b>	Cockroach	<i>Blattella germanica</i>	Tropomyosin
<b>rDer p 10</b>	House dust mite	<i>Dermatophagoides pteronyssinus</i>	Tropomyosin
<b>rPen a 1</b>	Shrimp	<i>Penaeus aztecus</i>	Tropomyosin
<b>nPen i 1</b>	Shrimp	<i>Penaeus indicus</i>	Tropomyosin
<b>nPen m 1</b>	Shrimp	<i>Penaeus monodon</i>	Tropomyosin



## BILLING POLICY FOR ALLERGY TESTING

Our policy is to respect your request for the allergens and decode them according to our best practice. If you have requested more allergens than our allowance under Medicare, we will bill your patient according to the pricing in this menu. If you have nominated the patient to be bulk-billed or if the patient has signed a Medicare assignment form, this billing policy will still apply for all tests above our allowance under Medicare.

You will see in our Allergy menu that we now list a price for each allergen reagent and that this is organised into different allergen classes. Core individual allergens are \$4, core mixed allergens are \$8, esoteric individual allergens are \$12 and esoteric mixed allergens are also \$12. Our highly specialised recombinant (r) or native (n) individual allergen molecules are \$40, and the ISAC profile, which tests 103 different individual allergen molecules from 47 different allergens, is \$350.

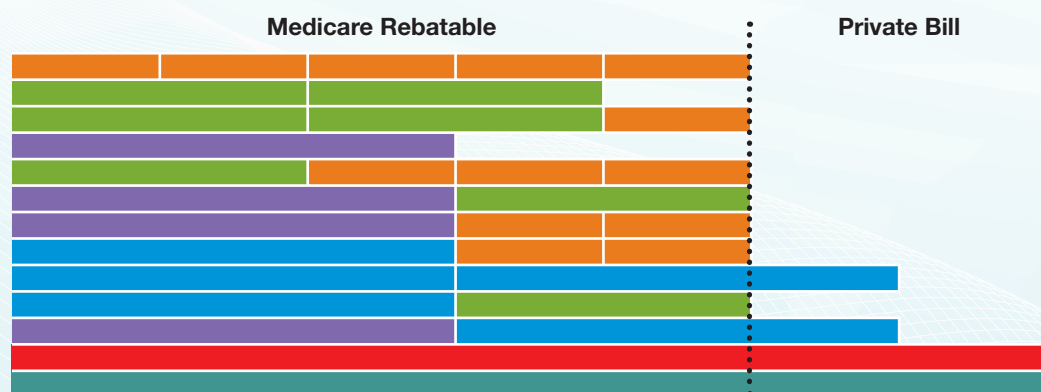
If the price of the allergens requested is more than the Medicare rebate of \$22.95, the laboratory will not accept bulk-billing for the request and the patient will be billed according to the price on the menu and may claim a rebate, subject to coning. Practically, this means we will not accept a bulk-billed request for more than five core individual allergens, or two core mixed allergens, or more than one esoteric individual or mixed allergens. However, one core mixed allergen plus three core individual allergens would be covered by the Medicare rebate. Similarly, two core mixed allergens *plus* one core individual allergen would be covered under our allowance under Medicare. One esoteric mixed or individual allergen *plus* two core individual allergens or one core mixed allergen would be covered under our allowance under Medicare. A simple table summarises this for you and your patients.

**Please note that eligible patients may be able to claim a rebate on four occasions per year for testing performed on separately collected blood, with each episode at least 14 days apart.**

## WHAT CAN YOU ORDER THAT IS MEDICARE REBATABLE?

### Our Fee For Different Allergen Types

Core individual	\$4	
Core mix	\$8	
Esoteric Individual	\$12	
Esoteric Mix	\$12	
Recombinant/ Native	\$40	
ISAC Profile	\$350	



Combinations beyond the black line will be privately billed but patients may be eligible for a Medicare rebate of \$22.95.

**As the list of allergens is constantly being expanded, you may wish to enquire about the availability of a particular allergen. Please contact Customer Service on 4224 7400 or for additional advice, Michael Fox (Special Services Manager) on 4224 7366.**