

Laboratory Tests for Allergy





- All our specific IgE testing is performed on the Phadia ImmunoCAP 250 and Phadia ImmunoCAP 1000 system. As the majority of published studies in allergy use this testing method, it is widely considered the benchmark for quantifying specific IgE.
- The Phadia ImmunoCAP and ISAC systems have the ability to define the molecule in a food to which a patient has significant specific IgE, and therefore provide diagnostic and prognostic information for patients with serious food allergy. This can be achieved by using allergen component ImmunoCAPs (Page 12), or as a profile with the ISAC microarray system (Pages 13-14).
- Due to Medicare funding constraints, the laboratory is unable to accept bulk billing requests for more than very basic allergy testing requests. Please refer to page 15 for billing details.

Specific IgE Testing

Specific IgE is usually measured to confirm an allergic aetiology for symptoms when there is a history that suggests a possible allergic cause.

All our specific IgE testing is performed on the Phadia ImmunoCAP 250 and Phadia ImmunoCAP 1000 system. As the majority of published studies in allergy use this testing method, it is widely considered the benchmark for quantifying specific IgE.

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 in some populations (see Table 1). 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 (0.10 to 0.35kU/L) that can have clinical significance as a marker of early sensitisation or previous significant sensitisation to insect venoms and drugs.

We differentiate the allergens we can test for as single allergens (a mixture of allergens molecules from one source, for example milk, coded f2); mixed allergens (a mixture of allergens from several sources, for example staple foods, coded fx5 which includes egg white, cow's milk, peanut, soy, wheat and codfish) and allergen components which are individual allergen molecules obtained by purification of the allergen molecule from a single source or by recombinant genetic technology, for example, the major milk components alpha-lactalbumin (coded f76), beta-lactoglobulin (coded f77) and casein (coded f78).

Mixed allergens are useful to screen economically for sensitisation to allergens in a mix; Single allergens are useful to confirm sensitisation to particular allergens while allergen component testing can provide additional diagnostic and prognostic information about a person's allergic sensitisation.

Multiple components may be tested more economically and efficiently by the ISAC system when more than a few component allergens are of clinical interest.

ISAC Microarray Technology

In the most important practical advance in laboratory allergy diagnostics, the Phadia ImmunoCAP ISAC microarray system allows us to determine a patient's specific IgE to 112 clinically important allergen molecules from 51 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. The ISAC profile is particularly useful for the assessment of highly sensitised patients, persons with birch tree pollen or other pollen cross-reactive oral allergy symptoms. The analytical sensitivity of the ISAC system for allergen-specific IgE detected by the ISAC profile is less than that of individual ImmunoCAPs and some lower level sensitisations may not be detected by the ISAC profile. Similarly some persons may be sensitised to minor allergens in plants or foods that are not represented and therefore not detected by the ISAC system.

Allergen Specific IgE

Specific IgE Levels Conferring Very High Risk of Anaphylaxis

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%

Table 1

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. Different populations have different risks for concentrations of allergen-specific IgE.

Total IgE & Specific IgE Index

The specific IgE index (percent of allergen specific IgE of total IgE) is another measure that can inform clinicians about potential severity and risk of a specific allergen sensitisation.

Total IgE measurements do provide a useful insight into an individual's allergic drive, particularly with severe eczema, managing immunosuppressive treatments for eczema, evolving allergic disease as well as assessment of allergobronchopulmonary aspergillosis. We measure total IgE levels on the ImmunoCAP 1000 system.

You will have noticed that some persons with significant allergy problems can have normal, moderately or strongly elevated IgE levels. Clinically significant specific IgE to allergens is uncommon when the total IgE is < 2 kU/L. A moderate amount of specific IgE to a particular allergen may have much greater significance for a relatively lower total IgE. A major emerging trend is to determine the Specific IgE Index (percentage of allergen specific IgE of total IgE). Limitations with this occur when only a few allergens are tested or the concentration of specific IgE to an allergen is > 100 kU/L (when an index cannot be calculated) but this does provide a useful context for assessing the likely significance of a specific allergic sensitisation in conjunction with clinical features and total IgE.

Allergic Inflammation Mediators

1) 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.

2) 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 and in following some persons with eosinophilic oesophagitis.

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.

Non-Allergic Angioedema

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 \$418 (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 \$132. The laboratory can also perform sequencing for other Factor XII mutations if required. The fee is \$418 (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 in this brochure.

For panels A1 and A2 we will accept the Medicare rebate.

A1: CHILD 6 years or less

Total IgE

F2	Cow's milk
D1	Dustmite
F1	Egg white
F13	Peanut
F14	Soy

A2: ADULT, or CHILD over 6 years

Total IgE

M6	Alternaria
E1	Cat
E5	Dog
D1	Dustmite
G4	Grass pollen (Fescue)

Other Common Initial Investigation Panels

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

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

A4 ANIMAL INHALANTS

E1	Cat
E5	Dog
D1	Dustmite
G4	Grass pollen

A5 RURAL INHALANTS

M6	Alternaria
G17	Paspalum
WX1	Weed mix

A6 PETS

E1	Cat
E5	Dog
E6	Guinea pig
E82	Rabbit

A7 MOULDS

M6	Alternaria
M3	Aspergillus
M5	<i>Candida albicans</i>
M2	Cladosporium

Other Common Initial Investigation Panels

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

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

A8 NATIVE TREES

T19	Acacia
T73	Australian Pine
T18	Eucalyptus
T21	Melaleuca

A9 FOOD SCREEN

F23	Crab
FX1	Nut Mix
F4	Wheat

A10 NUTS

F20	Almond
F17	Hazelnut
F13	Peanut
F201	Pecan nut

A11 SEAFOOD

F3	Codfish
F23	Crab
F24	Prawn
F80	Lobster

A12 CEREALS

F6	Barley
F9	Rice
F14	Soy
F4	Wheat

A13 STAPLE FOODS

F1	Egg white
F2	Milk
F13	Peanut
F14	Soybean

A14 INSECTS

I1	Honey bee venom
I71	Mosquito
I4	Paper wasp venom
I3	Yellow Jacket

A15 LATEX & FOODS

F92	Banana
F84	Kiwi fruit
K82	Latex
F87	Melon

A16 FOOD & INHALANTS

M6	Alternaria	D1	Dust Mite	G4	Grass Pollen (fescue)	FX5	Staple Foods
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A3 Child Allergy Assessment Panel (Request "IgE And RAST A3")

This 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 \$160, for which a Medicare rebate of \$22.95 may be available.

A3 CHILD

M6	<i>Alternaria alternata</i>	D1	Dustmite	K82	Latex	F35	Potato
F92	Banana	F1	Egg White	M227	Malassezia sp	E82	Rabbit Epithelium
G2	Bermuda Grass	F75	Egg Yolk	F91	Mango	F10	Sesame Seed
F202	Cashew	G4	Grass Pollen (fescue)	F2	Milk	F14	Soybean
E1	Cat Epithelium	F17	Hazelnut	W21	<i>Parietaria judaica</i>	M80	Staph. Enterotoxin A
F3	Codfish	E3	Horse Dander	F13	Peanut	F4	Wheat
E5	Dog	F84	Kiwi Fruit	G5	Perennial Rye Grass		

Extended Allergen Panel Examples

Our charge for each of these panels is \$125, 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

T19	Acacia
M6	<i>Alternaria alternata</i>
M3	<i>Aspergillus fumigatus</i>
T73	Australian Pine
G2	Bermuda Grass
D201	<i>Blomia tropicalis</i>
E1	Cat Epithelium
M2	<i>Cladosporium herbarum</i>
W1	Common Ragweed
E5	Dog
D1	Dustmite
W9	English Plantain
T18	Eucalyptus
G4	Grass pollen (fescue)
E3	Horse Dander
W10	Lamb's Quarters
T21	Melaleuca
W21	<i>Parietaria judaica</i>
G5	Perennial Rye Grass
E82	Rabbit Epithelium

A21 MOULD & STORAGE MITES

D70	<i>Acarus siro</i>
M6	<i>Alternaria alternata</i>
M3	<i>Aspergillus fumigatus</i>
D201	<i>Blomia tropicalis</i>
M5	<i>Candida albicans</i>
M2	<i>Cladosporium herbarum</i>
D1	<i>D. pteronyssinus</i>
M14	<i>Epicoccum purpurascens</i>
D74	<i>Euroglyphus maynei</i>
M9	<i>Fusarium moniliforme</i>
D73	<i>Glycyphagus domesticus</i>
M8	<i>Helminthosporium</i>
D71	<i>Lepidoglyphus destructor</i>
M227	<i>Malassezia sp</i>
M4	<i>Mucor racemosus</i>
M1	<i>Penicillium notatum</i>
M13	<i>Phoma betae</i>
M10	<i>Stemphylium botryosum</i>
M15	<i>Trichoderma viride</i>
D72	<i>Tyrophagus putrescentiae</i>

A22 FOODS

F20	Almond
F92	Banana
F6	Barley
F27	Beef
F3	Codfish
F1	Egg White
F17	Hazelnut
F84	Kiwi Fruit
F91	Mango
F2	Milk
F33	Orange
F13	Peanut
F35	Potato
F9	Rice
F5	Rye
F10	Sesame Seed
F14	Soybean
F44	Strawberry
F4	Wheat
F45	Yeast

A23 ANAPHYLACTIC FOODS

F20	Almond
F92	Banana
F27	Beef
F18	Brazil Nut
F36	Coconut
F3	Codfish
F23	Crab
F17	Hazelnut
F84	Kiwi Fruit
K82	Latex
F80	Lobster
F91	Mango
F290	Oyster
F13	Peanut
F201	Pecan Nut
F24	Prawn
F41	Salmon
F10	Sesame Seed
F40	Tuna
F256	Walnut



ANIMAL & AVIAN PROTEINS

Budgerigar droppings	E77
Budgerigar feathers	E78
Canary bird feathers	E201
Cat epithelium & dander	E1
Chicken droppings	E218
Chicken feathers	E85
Chicken serum proteins	E219
Cow dander	E4
Dog dander	E5
Duck feathers	E86
Finch feathers	E214
Goat epithelium	E80
Goose feathers	E70
Guinea pig epithelium	E6
Horse dander	E3
Mouse epithelium	E71
Mouse serum proteins	E76
Mouse urine proteins	E72
Parakeet droppings	E197
Parakeet feathers	E196
Parrot feathers	E213
Pigeon droppings	E7
Pigeon feathers	E215
Rabbit epithelium	E82
Rabbit serum proteins	E206
Rabbit urine proteins	E211
Rat epithelium	E73
Rat serum proteins	E75
Rat urine proteins	E74
Sheep epithelium	E81
Swine epithelium	E83
Swine serum albumin	E222
Turkey feathers	E89

DRUGS

Amoxicilloyl	C6
Ampicilloyl	C5
Cefaclor	C7
Chlorhexidine	C8
Chymopapain	C209
Gelatin bovine	C74
Insulin human	C73
Morphine	C260
Penicilloyl G	C1
Penicilloyl V	C2
Pholcodine	C261
Suxamethonium (Succinylcholine)	C202
Tetanus toxoid	C208

GRASS & GRAIN POLLENS

Bahia grass	G17
Barley Grain	G201
Bermuda grass	G2
Brome grass	G11
Cultivated oat	G14
Cultivated wheat	G15
Grass pollen (Fescue)	G4
Johnson grass	G10
Meadow grass	G8
Rye-grass	G5
Sweet vernal grass	G1
Timothy grass	G6
Velvet grass	G13

INSECTS

Cockroach American	I206
Cockroach Oriental	I207
Horse fly	I204
Moth	I8
Berlin beetle	I76
Blood worm	I73
Cockroach (<i>Blatella germanica</i>)	I6
Fire ant (<i>Solenopsis invicta</i>)	I70
Grain weevil (<i>Sitophilus granarius</i>)	I202
Green nimitti (<i>Cladotanytarsus</i>)	I72
Mediterranean Flour Moth	I203
Mosquito spp (<i>Aedes communis</i>)	I71

MOULDS, YEASTS & TOXINS

<i>Alternaria alternata</i>	M6
<i>Aspergillus flavus</i>	M228
<i>Aspergillus fumigatus</i>	M3
<i>Aspergillus niger</i>	M207
<i>Aspergillus terreus</i>	M36
<i>Aureobasidium pullulans</i>	M12
<i>Botrytis cinerea</i>	M7
<i>Candida albicans</i>	M5
<i>Cephalosporium acremonium</i>	M202
<i>Chaetomium globosum</i>	M208
<i>Cladosporium herbarum</i>	M2
<i>Curvularia lunata</i>	M16
<i>Epicoccum purpurascens</i>	M14
<i>Fusarium moniliforme</i>	M9
<i>Helminthosporium halodes</i>	M8
<i>Malassezia spp.</i>	M227
<i>Mucor racemosus</i>	M4
<i>Penicillium glabrum</i>	M209
<i>Penicillium notatum</i>	M1
<i>Phoma betae</i>	M13
<i>Rhizopus nigricans</i>	M11
<i>Staphylococcus enterotoxin A</i>	M80
<i>Stemphylium botryosum</i>	M10
<i>Tilletia tritici</i>	M201
<i>Trichoderma viride</i>	M15
<i>Trichophyton ment. var. interdigitale</i>	M211
<i>Trichophyton rubrum</i>	M205
<i>Trichosporon pullulans</i>	M203
<i>Ulocladium chartarum</i>	M204

MITES (HOUSE DUST & STORAGE)

<i>Acarus siro</i>	D70
<i>Blomia Tropicalis</i>	D201
<i>Dermatophagoides farinae</i>	D2
<i>Dermatophagoides microceras</i>	D3
<i>Dermatophagoides pteronyssinus</i>	D1
<i>Euroglyphus maynei</i>	D74
<i>Glycyphagus domesticus</i>	D73
House dust	H2
<i>Lepidoglyphus destructor</i>	D71
<i>Tyrophagus putrescentiae</i>	D72

Single Allergens

Single Allergens \$5

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

MISCELLANEOUS

Cotton crude fibres	O1
Seminal fluid	O70
Tetramin fish feed	O203
Tobacco leaf	O201

OCCUPATIONALS

Castor bean	K71
Chloramin T	K85
Ethylene oxide	K78
Formaldehyde/Formalin	K80
Green coffee bean	K70
Isocyanate HDI	K77
Isocyanate MDI	K76
Isocyanate TDI	K75
Ispaghula	K72
Latex, <i>Hevea brasiliensis</i>	K82
Silk	K74
Silk waste	K73
Sunflower seed	K84
Trimellitic Anhydride TMA	K86

PARASITES

Anisakis	P4
Ascaris	P1

TREE POLLENS

Acacia	T19
American beech	T5
Australian pine	T73
Birch	T3
Box-elder	T1
Chestnut	T206
Cottonwood	T14
Cypress	T222
Date	T214
Elm	T8
<i>Eucalyptus</i>	T18
Grey alder	T2
Italian cypress	T23
Japanese cedar	T17

TREE POLLENS

<i>Melaleuca</i>	T21
Mountain juniper	T6
Oak	T7
Oil palm	T223
Olive	T9
Peppertree	T217
Pine	T213
Privet pollen	T210
Red Cedar	T57
Sweet gum	T211
Sycamore, London plane	T11
White ash	T15
White pine	T16
Willow	T12

VENOMS

<i>Dolichovespula maculata</i> (White-faced hornet)	I2
Honey bee (<i>Apis mellifera</i>)	I1
Paper wasp (<i>Polistes</i> spp.)	I4
<i>Polistes dominulus</i> (European paper wasp)	I77
<i>Vespa crabro</i> (European Hornet)	I75
Yellow hornet (<i>Dolichovespula arenaria</i>)	I5
Yellow jacket (<i>Vespula</i> spp. Common wasp)	I3

WEED AND CROP POLLENS

Canola (Rapeseed)	W203
Careless weed	W82
Common pigweed	W14
Common ragweed	W1
Dandelion	W8
English plantain	W9
False ragweed	W4
Goosefoot Lamb's quarters	W10
Lupin	W207
Mugwort	W6
Ox-eye daisy	W7
<i>Parietaria judaica</i>	W21
Rough marshelder	W16
Saltwort Russian thistle	W11
Sheep sorrel	W18
Sunflower	W204
Western ragweed	W2
Wormwood	W5



FRUIT & VEGETABLES

Apple	F49
Apricot	F237
Asparagus	F261
Aubergine (eggplant)	F262
Avocado	F96
Bamboo shoot	F51
Banana	F92
Beetroot	F319
Blackberry	F211
Blueberry	F288
Broccoli	F260
Brussel sprouts	F217
Cabbage	F216
Carrot	F31
Cauliflower	F291
Celery	F85
Cherry	F242
Cucumber	F244
Date	F289
Fennel fresh	F276
Fig	F328

FRUIT & VEGETABLES

Garlic	F47
Grape	F259
Grapefruit	F209
Guava	F292
Kiwi fruit	F84
Lemon	F208
Lettuce	F215
Lime	F306
Lychee	F348
Mandarin	F302
Mango fruit	F91
Olive (black fresh)	F342
Onion	F48
Orange	F33
Papaya	F293
Passionfruit	F294
Peach	F95
Pear	F94
Persimmon	F301
Pineapple	F210
Plum	F255
Potato	F35
Pumpkin	F225
Raspberry	F343
Red currant	F322
Rockmelons	F87
Rose hip	F330
Spinach	F214
Strawberry	F44
Sweet potato	F54
Tomato	F25
Watermelon	F329

MEAT

Chicken meat	F83
Beef	F27
Mutton	F88
Pork	F26
Rabbit meat	F213
Turkey meat	F284

POULTRY

Chicken meat	F83
Egg white	F1
Egg yolk	F75
Turkey meat	F284

SEED, LEGUMES & NUTS

Almond	F20
Barley	F6
Beans - green	F315
Beans - Lima	F182
Beans - Red kidney	F287
Beans - Soya	F14
Brazil nut	F18
Buckwheat	F11
Canola	F316
Cashew nut	F202
Chickpea	F309
Coconut	F36
Common millet	F55
Corn	F8
Fenugreek	F305
Gluten	F79
Hazel nut	F17
Japanese millet	F57
Lentil	F235
Linseed	F333
Lupin	F335
Macadamia nut	F345
Oat	F7
Pea	F12
Peanut	F13
Pecan nut	F201
Pine nut (pignoles)	F253
Pistachio	F203
Poppy seed	F224

Single Food Allergens

Single Food Allergens \$5

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

SEED, LEGUMES & NUTS

Pumpkin seed	F226
Quinoa	F347
Red Kidney Bean	F287
Rice	F9
Rye	F5
Sesame seed	F10
Spelt wheat	F124
Sweet Chestnut	F299
Walnut	F256
Wheat	F4
White bean	F15

SPICES

Anise	F271
Basil	F269
Bay leaf	F278
Black pepper	F280
Caraway	F265
Cardamon	F267
Chili pepper	F279
Cinnamon	F220
Coriander	F317
Curry (Santa Maria)	F281
Fennel seed	F219
Ginger	F270
Green pepper (unripe seed)	F263
Mint	F332
Mustard	F89
Oregano	F283
Paprika sweet pepper	F218
Parsley	F86
Sage	F344
Thyme	F273
Vanilla	F234

FISH & SHELLFISH

Abalone	F346
Anchovy	F313
Blue mussel	F37
Catfish	F369
Clam	F207
Crab	F23
Crayfish	F320
Eel	F264
Codfish	F3
Grouper	F410
Haddock	F42
Hake	F307
Halibut	F303
Herring	F205
Jack mackerel (Scad)	F60
Lobster	F80
Mackerel	F206
Octopus	F59
Oyster	F290
Red Snapper	F381
Salmon	F41
Sardine (Japanese) Pilchard	F61
Scallop	F338
Shrimp	F24
Snail	F314
Sole	F337
Squid	F258
Swordfish	F312
Trout	F204
Tuna	F40
Whitefish	F384

MILK

Alpha lactalbumin	F76
Beta lactoglobulin	F77
Casein	F78
Cheese Cheddar-type	F81
Cheese Mould-type	F82
Cow's whey	F236
Goat milk	F300
Milk	F2
Sheep milk	F325
Sheep whey	F326

MISCELLANEOUS

Cacao	F93
Carob (E410)	F296
Cochineal (Carmine red, E120)	F340
Coffee	F221
Guar, guar gum (E412)	F246
Gum arabic (E414)	F297
Honey	F247
Hop (fruit cone)	F324
Malt	F90
Mushroom (champignon)	F212
Tea	F222
Tragacanth (E413)	F298
Yeast (<i>S. cerevisiae</i>)	F45



HOUSE DUST

Dust & Mite Mix Dust and mite mix **HX2** (H2 D1 D2 I6)

ANIMAL DANDER MIXES

Animal Mix 1	Cat dander, Horse dander, Cow dander, Dog dander	EX1	(E1 E3 E4 E5)
Animal Mix 2	Cat dander, Dog dander, Guinea pig epithelium, Rat, Mouse	EX2	(E1 E5 E6 E87 E88)
Animal Mix 3	Guinea pig epithelium, Rabbit epithelium, Hamster epithelium, Rat, Mouse	EX70	(E6 E82 E84 E87 E88)
Bird Mix	Budgerigar feathers, Canary bird feathers, Parakeet feathers, Parrot feathers, Finch feathers	EX72	(E78 E201 E196 E213 E214)
Feather Mix	Goose feathers, Chicken feathers, Duck feathers, Turkey feathers	EX71	(E70 E85 E86 E89)

GRASS POLLEN MIXES

Grass Mix 1	Cocksfoot, Meadow Fescue, Rye grass, Timothy grass, Meadow grass	GX1	(G3 G4 G5 G6 G8)
Grass Mix 2	Bermuda grass, Rye grass, Timothy grass, Meadow grass, Johnson grass, Bahia grass	GX2	(G2 G5 G6 G8 G10 G17)
Grass Mix 4	Sweet Vernal grass, Rye grass, Common Reed, Cultivated Rye, Velvet grass	GX4	(G1 G5 G7 G12 G13)

TREE POLLEN MIXES

Tree Mix 1	Box elder, Birch, Oak, Elm, Walnut	TX1	(T1 T3 T7 T8 T10)
Tree Mix 2	Box elder, Oak, Elm, Cottonwood, Pecan Hickory	TX2	(T1 T7 T8 T14 T22)
Tree Mix 3	Mountain Juniper, Oak, Elm, Cottonwood, Mesquite	TX3	(T6 T7 T8 T14 T20)
Tree Mix 4	Oak, Elm, Sycamore, Willow, Cottonwood	TX4	(T7 T8 T11 T12 T14)
Tree Mix 5	Grey Alder, Hazel, Elm, Willow, Cottonwood	TX5	(T2 T4 T8 T12 T14)
Tree Mix 6	Box elder, Birch, American Beech, Oak, Walnut	TX6	(T1 T3 T5 T7 T10)
Tree Mix 7	Olive, Willow, White Pine, Eucalyptus, Acacia, Melaleuca	TX7	(T9 T12 T16 T18 T19 T21)
Tree Mix 8	Box elder, Birch, Hazel, Oak, Sycamore	TX8	(T1 T3 T4 T7 T11)
Tree Mix 9	Grey Alder, Birch, Hazel, Oak, Willow	TX9	(T2 T3 T4 T7 T12)
Tree Mix 10	Grey Alder, Birch, White Ash	TX10	(T2 T3 T4 T15)

WEED POLLEN MIXES

Weed & Flower Mix	Common ragweed, Mugwort, Ox-eye Daisy, Dandelion, Golden rod	WX5	(W1 W6 W7 W8 W12)
Weed Mix 1	Common ragweed, Mugwort, English Plantain, Goosefoot Lamb's Quarters, Sattitwort	WX1	(W1 W6 W9 W10 W11)
Weed Mix 2	Western ragweed, Mugwort, English Plantain, Goosefoot Lamb's Quarters, Scale Lenscale	WX2	(W2 W6 W9 W10 W15)

Mixed Allergens

Mixed Allergens \$10

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

MOULD MIXES

Mould Mix 2	<i>Penicillium chrysogenum, Cladosporium herbarum, Aspergillus fumigatus, Candida albicans, Alternaria alternata, Setomelanomma rostrata</i>	MX2	(M1 M2 M3 M5 M6 M8)
Mould Mix 4	<i>A. fumigatus, A. niger, A. terreus, A. flavus</i>	MX4	(M3 M207 M36 M228)

COMBINATION INHALANT MIXES

Inhalant 3	Bermuda grass, Rye grass, Bahia grass, Common Ragweed, English Plantain, Goosefoot Lamb's Quarters	RX3	(G2 G5 G17 W1 W9 W10)
Inhalant 4	Sweet Vernal grass, Bermuda grass, Rye grass, Common Ragweed, Mugwort, English Plantain,	RX4	(G2 G5 G1 W1 W6 W9)

OCCUPATIONAL MIXES

Chemicals 1	Isocyanates (TDI, MDI, HDI), Phthalic anhydride	PAX5	(K75 K76 K77 K79)
Chemicals 2	Ethylene oxide, Phthalic anhydride, Formaldehyde, Chloramin T	PAX6	(K78 K79 K80 K85)
Occupational 4	Wheat & Soy flour, alpha-amylase, <i>Sitophilus granarius</i>	PAX4	(F4 F14 K87 I202)

FOOD MIXES

Cereal Mix	Wheat, Oat, Maize, Sesame seed, Buckwheat	FX3	(F4 F7 F8 F10 F11)
Fruit Mix	Orange, Apple, Banana, Peach	FX15	(F33 F49 F92 F95)
Meat Mix	Pork, Beef, Chicken	FX73	(F26 F27 F83)
Nut Mix	Peanut, Hazel nut, Brazil nut, Almond, Coconut	FX1	(F13 F17 F18 F20 F36)
Seafood Mix	Fish, Shrimp, Blue mussel, Tuna, Salmon	FX2	(F3 F24 F37 F40 F41)
Spice Mix 1	Tarragon, Marjoram, Thyme, Lovage	FX70	(F272 F274 F273 F275)
Spice Mix 2	Caraway, Mace, Cardamom, Clove	FX71	(F265 RF266 F267 F268)
Spice Mix 3	Basil, Fennel seed, Ginger, Anise	FX72	(F269 F219 F270 F271)
Staple Food Mix	Egg white, Milk, Fish, Wheat, Peanut, Soybean	FX5	(F1 F2 F3 F4 F13 F14)
Vegetable Mix	Carrot, Potato, Spinach, Cucumber	FX19	(F31 F35 F214 F244)
Food Mix 7	Tomato, Yeast, Garlic, Onion, Celery	FX7	(F25 F45 F47 F48 F85)
Food Mix 20	Wheat, Rye, Barley, Rice	FX20	(F4 F5 F6 F9)
Food Mix 26	Egg white, Cow's milk, Peanut, Mustard	FX26	(F1 F2 F13 F89)
Food Mix 74	Cod, Herring, Mackerel, Plaice	FX74	(F3 F205 F206 F254)

Allergen Components

Allergen Components \$40

ANIMALS

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

FOODS

nBos d 4 a-lactalbumin, Milk Bos spp.	F76
nBos d 5 b-lactoglobulin, Milk Bos spp.	F77
nBos d 8 Casein, Milk Bos spp.	F78
nBos d Lactoferrin, Milk Bos spp.	F334
nGal d 1 Ovomucoid, Egg Gallus spp.	F233
nGal d 2 Ovalbumin, Egg Gallus spp.	F232
nGal d 3 Conalbumin, Egg Gallus spp.	F323
rAra h 1 Peanut <i>Arachis hypogaea</i>	F422
rAra h 2 Peanut <i>Arachis hypogaea</i>	F423
rAra h 3 Peanut <i>Arachis hypogaea</i>	F424
rAra h 8 PR-10, Peanut <i>Arachis hypogaea</i>	F352
rAra h 9 LTP, Peanut <i>Arachis hypogaea</i>	F427
rCor a 1 PR-10, Hazel nut <i>Corylus avellana</i>	F428
rCor a 8 LTP, Hazel nut <i>Corylus avellana</i>	F425
rGad c 1 Cod <i>Gadus morhua</i>	F426
rPen a 1 Tropomyosin, Shrimp <i>Penaeus aztecus</i>	F351
rPru p 1 PR-10, Peach <i>Prunus persica</i>	F419
rPru p 3 LTP, Peach <i>Prunus persica</i>	F420
rPru p 4 Profilin, Peach <i>Prunus persica</i>	F421
rTri a 19 Omega-5 Gliadin, Wheat <i>Triticum</i> spp	F416

Note: These allergens are priced as core individual allergens (\$5 ea)

VENOM

rApi m 1 Phospholipase A2, Honey Bee	I208
rVes v 1 Phospholipase A1, Common Wasp	I211
rVes v 5 Common Wasp	I209
rPol d 5 European Paper Wasp	I210

TREES

rBet v 1 PR-10, Birch <i>Betula verrucosa</i>	T215
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MOULDS

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

LATEX

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

OCCUPATIONAL ALLERGENS

nCar p 1 Papain, <i>Papaya Carica</i>	K201
nAsp o 1 a-amylase <i>Aspergillus oryzae</i>	K87

OTHERS (to exclude CCD reactivity)

nAna c 2 Bromelin, Pineapple <i>Ananas comosus</i>	K202
nO214 MUXF3 CCD, Bromelin	O214

MISCELLANEOUS

Alpha-gal (Gal-alpha-1,3-Gal Thyroglobulin, bovine)	U953
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ImmunoCAP ISAC® Allergen Component Microarray

\$350 for panel of 112 allergen components from 51 allergens

Note: Only some of these components are available as individual allergen component immunoassays

ALLERGEN COMPONENT	ALLERGEN SOURCE COMMON NAME	LATIN NAME	PROTEIN GROUP
FOOD ALLERGENS			
nGal d 1	Egg white	<i>Gallus domesticus</i>	Ovomucoid
nGal d 2	Egg white	<i>Gallus domesticus</i>	Ovalbumin
nGal d 3	Egg white	<i>Gallus domesticus</i>	Conalbumin/Ovotransferrin
nGal d 5	Egg yolk/chicken meat	<i>Gallus domesticus</i>	Livetin/Serum albumin
nBos d 4	Cow's milk	<i>Bos domesticus</i>	Alpha-lactalbumin
nBos d 5	Cow's milk	<i>Bos domesticus</i>	Beta-lactoglobulin
nBos d 6	Cow's milk and meat	<i>Bos domesticus</i>	Serum albumin
nBos d 8	Cow's milk	<i>Bos domesticus</i>	Casein
nBos d lactoferrin	Cow's milk	<i>Bos domesticus</i>	Transferrin
rGad c 1	Cod	<i>Gadus callarias</i>	Parvalbumin
nPen m 1	Shrimp	<i>Penaeus monodon</i>	Tropomyosin
nPen m 2	Shrimp	<i>Penaeus monodon</i>	Arginine kinase
nPen m 4	Shrimp	<i>Penaeus monodon</i>	Sarcoplasmic Ca-binding protein
rAna o 2	Cashew nut	<i>Anacardium occidentale</i>	Storage protein, 11S globulin
rBer e 1	Brazil nut	<i>Bertholletia excelsa</i>	Storage protein, 2S albumin
rCor a 1.0401	Hazelnut	<i>Corylus avellana</i>	PR-10 protein
rCor a 8	Hazelnut	<i>Corylus avellana</i>	Lipid transfer protein (nsLTP)
nCor a 9	Hazelnut	<i>Corylus avellana</i>	Storage protein, 11S globulin
nJug r 1	Walnut	<i>Juglans regia</i>	Storage protein, 2S albumin
nJug r 2	Walnut	<i>Juglans regia</i>	Storage protein, 7S globulin
nJug r 3	Walnut	<i>Juglans regia</i>	Lipid transfer protein (nsLTP)
nSes i 1	Sesame seed	<i>Sesamum indicum</i>	Storage protein, 2S albumin
rAra h 1	Peanut	<i>Arachis hypogaea</i>	Storage protein, 7S globulin
rAra h 2	Peanut	<i>Arachis hypogaea</i>	Storage protein, Conglutin
rAra h 3	Peanut	<i>Arachis hypogaea</i>	Storage protein, 11S globulin
nAra h 6	Peanut	<i>Arachis hypogaea</i>	Storage protein, Conglutin
rAra h 8	Peanut	<i>Arachis hypogaea</i>	PR-10 protein
rAra h 9	Peanut	<i>Arachis hypogaea</i>	Lipid transfer protein (nsLTP)
rGly m 4	Soybean	<i>Glycine max</i>	PR-10 protein
nGly m 5	Soybean	<i>Glycine max</i>	Storage protein, Beta-conglycinin
nGly m 6	Soybean	<i>Glycine max</i>	Storage protein, Glycinin
nFag e 2	Buckwheat	<i>Fagopyrum esculentum</i>	Storage protein, 2S albumin
rTri a 14	Wheat	<i>Triticum aestivum</i>	Lipid transfer protein (nsLTP)
rTri a 19.0101	Wheat	<i>Triticum aestivum</i>	Omega-5 gliadin
nTri a aA_TI	Wheat	<i>Triticum aestivum</i>	
nAct d 1	Kiwi	<i>Actinidia deliciosa</i>	
nAct d 2	Kiwi	<i>Actinidia deliciosa</i>	Thaumatine-like protein
nAct d 5	Kiwi	<i>Actinidia deliciosa</i>	
rAct d 8	Kiwi	<i>Actinidia deliciosa</i>	PR-10 protein
rApi g 1	Celery	<i>Apium graveolens</i>	PR-10 protein
rMal d 1	Apple	<i>Malus domestica</i>	PR-10 protein
rPru p 1	Peach	<i>Prunus persica</i>	PR-10 protein
rPru p 3	Peach	<i>Prunus persica</i>	Lipid transfer protein (nsLTP)
AEROALLERGENS			
nCyn d 1	Bermuda grass	<i>Cynodon dactylon</i>	Grass group 1
rPhl p 1	Timothy grass	<i>Phleum pratense</i>	Grass group 1
rPhl p 2	Timothy grass	<i>Phleum pratense</i>	Grass group 2
nPhl p 4	Timothy grass	<i>Phleum pratense</i>	
rPhl p 5	Timothy grass	<i>Phleum pratense</i>	Grass group 5
rPhl p 6	Timothy grass	<i>Phleum pratense</i>	
rPhl p 7	Timothy grass	<i>Phleum pratense</i>	Polcalcin
rPhl p 11	Timothy grass	<i>Phleum pratense</i>	
rPhl p 12	Timothy grass	<i>Phleum pratense</i>	Profilin
rAln g 1	Alder	<i>Alnus glutinosa</i>	PR-10 protein
rBet v 1	Birch	<i>Betula verrucosa</i>	PR-10 protein
rBet v 2	Birch	<i>Betula verrucosa</i>	Profilin
rBet v 4	Birch	<i>Betula verrucosa</i>	Polcalcin

ImmunoCAP ISAC® Allergen Component Microarray

\$350 for panel of 112 allergen components from 51 allergens

Note: Only some of these components are available as individual allergen component immunoassays

ALLERGEN COMPONENT	ALLERGEN SOURCE COMMON NAME	LATIN NAME	PROTEIN GROUP
AEROALLERGENS			
rCor a 1.0101	Hazel pollen	<i>Corylus avellana</i>	PR-10 protein
nCry j 1	Japanese cedar	<i>Cryptomeria japonica</i>	
nCup a 1	Cypress	<i>Cupressus arizonica</i>	
nOle e 1	Olive	<i>Olea europaea</i>	
nOle e 7	Olive	<i>Olea europaea</i>	Lipid transfer protein (nsLTP)
rOle e 9	Olive	<i>Olea europaea</i>	
rPla a 1	Plane tree	<i>Platanus acerifolia</i>	
nPla a 2	Plane tree	<i>Platanus acerifolia</i>	
rPla a 3	Plane tree	<i>Platanus acerifolia</i>	Lipid transfer protein (nsLTP)
nAmb a 1	Ragweed	<i>Ambrosia artemisiifolia</i>	
nArt v 1	Mugwort	<i>Artemisia vulgaris</i>	
nArt v 3	Mugwort	<i>Artemisia vulgaris</i>	Lipid transfer protein (nsLTP)
rChe a 1	Goosefoot	<i>Chenopodium album</i>	
rMer a 1	Annual mercury	<i>Mercurialis annua</i>	Profilin
rPar j 2	Wall pellitory	<i>Parietaria judaica</i>	Lipid transfer protein (nsLTP)
rPla l 1	Plantain (English)	<i>Plantago lanceolata</i>	
nSal k 1	Saltwort	<i>Salsola kali</i>	
rCan f 1	Dog	<i>Canis familiaris</i>	Lipocalin
rCan f 2	Dog	<i>Canis familiaris</i>	Lipocalin
nCan f 3	Dog	<i>Canis familiaris</i>	Serum albumin
rCan f 5	Dog	<i>Canis familiaris</i>	Arginine esterase
rEqu c 1	Horse	<i>Equus caballus</i>	Lipocalin
nEqu c 3	Horse	<i>Equus caballus</i>	Serum albumin
rFel d 1	Cat	<i>Felis domesticus</i>	Uteroglobin
nFel d 2	Cat	<i>Felis domesticus</i>	Serum albumin
rFel d 4	Cat	<i>Felis domesticus</i>	Lipocalin
nMus m 1	Mouse	<i>Mus musculus</i>	Lipocalin
rAlt a 1	Alternaria	<i>Alternaria alternata</i>	
rAlt a 6	Alternaria	<i>Alternaria alternata</i>	Enolase
rAsp f 1	Aspergillus	<i>Aspergillus fumigatus</i>	
rAsp f 3	Aspergillus	<i>Aspergillus fumigatus</i>	
rAsp f 6	Aspergillus	<i>Aspergillus fumigatus</i>	Mn superoxide dismutase
rCla h 8	Cladosporium	<i>Cladosporium herbarum</i>	
rBlo t 5	House dust mite	<i>Blomia tropicalis</i>	
nDer f 1	House dust mite	<i>Dermatophagoides farinae</i>	
rDer f 2	House dust mite	<i>Dermatophagoides farinae</i>	
nDer p 1	House dust mite	<i>Dermatophagoides pteronyssinus</i>	
rDer p 2	House dust mite	<i>Dermatophagoides pteronyssinus</i>	
rDer p 10	House dust mite	<i>Dermatophagoides pteronyssinus</i>	Tropomyosin
rLep d 2	Storage mite	<i>Lepidoglyphus destructor</i>	
rBla g 1	Cockroach	<i>Blattella germanica</i>	
rBla g 2	Cockroach	<i>Blattella germanica</i>	
rBla g 5	Cockroach	<i>Blattella germanica</i>	
nBla g 7	Cockroach	<i>Blattella germanica</i>	Tropomyosin
OTHER			
rApi m 1	Honey bee venom	<i>Apis mellifera</i>	Phospholipase A2
nApi m 4	Honey bee venom	<i>Apis mellifera</i>	Melittin
rPol d 5	Paper wasp venom	<i>Polistes dominulus</i>	Venom, Antigen 5
rVes v 5	Common wasp venom	<i>Vespula vulgaris</i>	Venom, Antigen 5
rAni s 1	Anisakis	<i>Anisakis simplex</i>	
rAni s 3	Anisakis	<i>Anisakis simplex</i>	Tropomyosin
rHev b 1	Latex	<i>Hevea brasiliensis</i>	
rHev b 3	Latex	<i>Hevea brasiliensis</i>	
rHev b 5	Latex	<i>Hevea brasiliensis</i>	
rHev b 6.01	Latex	<i>Hevea brasiliensis</i>	
rHev b 8	Latex	<i>Hevea brasiliensis</i>	Tropomyosin
nMUXF3	Sugar epitope from Bromelain		Tropomyosin

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 this brochure. 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.

Billing Policy For Allergy Testing

Clinpath is committed to offering the best available allergy testing systems.

Our policy is to respect your request for the allergens and decode them according to our best practice.

If your test request exceeds our allowance under Medicare, we will still test for the allergens, but will need to bill your patient according to our price menu for any additional tests.

Additional tests will incur an allergen test fee, plus the costs of the extra allergens ordered.

In our Allergy menu we now list a price for each allergen reagent and this is organised into different allergen classes:

Additional allergen test fee	\$25
Single allergens	\$5
Mixed allergens	\$10
Allergen components	\$40
ISAC profile	\$350

Due to Medicare restrictions Clinpath can only accept bulk-billed requests for:

- four single allergens (coded orange in this brochure) or
- two mixes (coded green) or
- one mix and two single allergens

Any additional tests will be billed to the patient.

The patient will receive an invoice of \$25 plus \$5 per single allergen, \$10 per mixed allergen and \$40 per allergen component.

These additional tests are not Medicare rebatable.

For any billing enquiries please contact (08) 8366 2066.

Note: Medicare allows a rebate on allergy testing (within the allowable limits as listed above) for each patient on four occasions per year. Testing must be performed on separately collected blood with each episode at least 14 days apart.

For specialist advice please contact the Sonic Consultant Immunopathologist
Dr Karl Baumgart on 02 9855 5286, or email to kbaumgart@dhm.com.au

Contact Details

General Enquiries	8366 2000
Result Enquiries	8366 2111
Patient Bookings	www.onlinepatientbookings.com.au

www.clinpath.com.au