Guide for selecting allergen specific IgE test

The management of an allergic disorder firstly requires accurate diagnosis of the offending triggers or allergens which cause the condition. Clinician can choose one of the following panels to screen the patients with ALFA Point-of-Care test or send the serum samples to commercial lab for ImmunoCAP test.

The detection of specific IgE is integral to the assessment and management of allrgic disorders including:

Allergic rhinioconjunctivitis

Atopic eczema

Allergic asthma

Food Allergy

Stinging insect allergy

Certain drug allergies

Certain occupational allergies

An allergen specific IgE test is used to measure the amount of IgE antibody in the blood sample. In clinical practice, 0.35 kU_A/L has commonly been used as a cut-off for allergen-specific IgE to separate postive from negative results. Measurement of low levels of IgE between 0.1 and 0.5 kU_A/L has recently been shown to be important in some patients for certain allergens such as drug and insect venom.

Low level of specific IgE on ALFA or ThermoFisher ImmunoCAP generally indicates low probability of clinical allergy to a specific allergen and vice versa. Significance may also be affected by total IgE level though very high totally IgE (e.g. > 5000 kU/L) may lead to false positive sIgE results.

Table: Interpretive table for allergen specific IgE

sIgE result (kU_A/L)	IgE Ab Level	Symptom relation
< 0.1	Undetectable	Unlikely
0.1 - 0.49	Very low	Uncommon
0.5 - 1.9	Low	Possible
2.0 - 14.9	Moderate	Common
15 - 50	High	High
> 50	Very high	Very high

Note: Avoidance should be recommended only when clinical symptoms of reactivity to allergy exposure develops

Selection of allergens for testing for sIgE diagnosis

Allergen selection is directed by the clinical scenario of the patients. In Hong Kong, the most common inhalant allergen sensitivities are house dust mites, cockroaches, animal danders and moulds. Based on epidemiological studies and clinical experience, pollen senstivitiy do exist at a low rate but normally not the cause of the symptoms as the relevant plants are not available in Hong Kong.

A full guide to allergen selection is shown below with clinical problem and age suggestions.

Suggestions based on clinical presentation

Infant to 12 months old

In this age group, food allergens predominate with usually sensitization to inhalant allergens

Suspected allergens	Recommendations for testing
Milk	Suspected allergens can be requested individually or request 'food mix' (milk, egg, soy, peanut, fish, wheat) if triggers are unclear
Egg	
Soy	
Peanut	
Fish	
Wheat	
Nuts	Nut mix (peanut, almond, coconut, haxelnut, brazil nut)
Cereals	Cereal mix (wheat, oats, buckwheat, corn, sesame)

Early childhood: 1 to 5 years old

In this age group, both food and inhalant allergy occurs. Test choice should be determined by the clinical picture

Suspected allergens	Recommendations for testing
Milk	Suspected allergens can be requested individually or request 'food mix' (milk, egg, soy, peanut, fish, wheat) if triggers are unclear
Egg	
Soy	
Peanut	
Fish	
D. pteronyssinus	House dust mite Dermatophagoides pteronyssinus
D. farinae	House dust mite Dermatophagoides farinae
Blomia tropicalis	Storage mite Blomia tropicalis
Cat dander	Cat
Dog dander	Dog
Other pet's dander	Select the suspected allergen based on whehter the patient has the relevant contact history
German cockroach	The small brown cockroach
American cockroach	The big black cockroach
Mould mix	Penicillium, Cladosporium Alternaria, Aspergillus

Older children and adults

In this age group, environmental (inhalant) allergy predominates with lesser frequency of food allergy. Test choice should be determined by the clinical picture

Suspected allergens	Recommendations for testing
D. pteronyssinus	House dust mite Dermatophagoides pteronyssinus
D. farinae	House dust mite Dermatophagoides farinae
Blomia tropicalis	Storage mite Blomia tropicalis
Cat dander	Cat
Dog dander	Dog
Other pet's dander	Select the suspected allergen based on whehter the patient has the relevant
German cockroach	The small brown cockroach
American cockroach	The big black cockroach
Mould mix	Penicillium, Cladosporium Alternaria, Aspergillus

Specific nut allergy

Suspected allergens	Recommendations for testing
Peanut	Peanut
Nuts	Cashew, walnut, macadamia + nut mix (peanut, almond, coconut, hazelnut, brazil nut)
Soy	Soy
Sesame	Sesame

Seafood allergy

Suspected allergens	Recommendations for testing
Fish (Cod)	
Crustaceans	Shrimp, crab, lobster
Molluscs	Oyster, mussel, squid, scallop
Uncertain seafood	Crab, squid, lobster + seafood mix (cod, shrimp, tuna, blue mussel, salmon)

Screening panel

To ease the selection of allergens, clinical can select one of the following pre-set panels which offer comprehensive coverage of the commonest allergens in Hong Kong

Panel 1 General screening	Panel 2 Infant allergy	Panel 3 Childhood allergy	Panel 4 Indoor allergy
PIS Perrenial inhalants fx5 food mix e1 Cat e5 Dog	f2 Cow 's Milk f76 Alpha-Lactalbumin f77 Beta-Lactoglobulin f78 Casein f1 Egg white f68 Ovomucoid fx5 Food mix fx 3 Nut mix	d1 D. pteronyssinus d5 Blomia tropicalis e1 Cat e 5Dog i6 German cockroach f252 Egg f2 Milk f13 Peanut	d1 D. pteronyssinus d2 D. farinae d5 Blomia tropicalis e1 Cat e 5Dog i6 German cockroach i14 American cockroach mx1 Mould mix

Panel 5 Seasonal allergy (only with possible exposure)
g001 Sweet Vernal Grass 黃花草 g002 Bermuda Grass 狗牙根 g004 Meadow fescue 草甸羊茅 g005 Perennial Rye Grass 黑麥草 g006 Timothy Grass 梯牧草 t003 Birch 白樺樹花粉 w001 Ambrosia elatior 豚草 w006 Mugwort 艾蒿

mx1: Cladosporium, Aspergillus, Alternaria

f5x: cow's milk, cod fish, wheat, peanut, soy, hazelnut

f3x: walnut, hazelnut

PIS: Der p, Der f, German cockroach, Aspergillus