LABUPDATE no. 38 version 3

March 2025

AMPATH LABORATORIES

INTRODUCING THE ALEX² TEST

The diagnosis of an allergy involves thorough history taking and diagnostic blood, skin prick and/or provocation tests. Blood tests can be divided into IgE-mediated and non-IgE-mediated tests. Blood tests for specific IgE antibodies against allergens are safe and do not require medication to be withdrawn prior to testing. The IgE-mediated blood tests consist of screening panels (Phadiatop inhalant and food mix IgE) and specific IgE tests directed at individual allergen extracts with or without allergen molecular components.

The Allergy Xplorer (ALEX²) is a multiplex IgE immunoassay in the form of a chip-based macroarray. It contains both whole allergen extracts and molecular allergen components. This multiplex allergy tests simultaneously measures multiple allergens in one test. It is a cost-effective way to examine IgE sensitisation patterns, especially in patients with complex symptoms, poly-sensitisation and high levels of total serum IgE. Although similar to the Immuno Solid-Phase Allergen Chip (ISAC) test, there are key differences, including the number of allergens offered and the decreased cost per allergen (Table 1). The use of a cross-reactive carbohydrate determinants (CCD) inhibitor reduces the reporting of clinically irrelevant cross-reactivity.

TABLE 1: COMPARISON OF THE ALEX², ISAC E112i™ AND PHADIATOP/FOOD MIX IGE ALLERGEN TESTS

	ALEX²	**ISAC E112i™**	**Phadiatop (inhalants) and food mix (Fx5) IgE screens with breakdown allergens**
Number of IgE allergens tested	~300 whole extract allergens and allergen components	112 allergen components	Phadiatop screen and food mix screen with 15 whole extract allergens in the breakdown
Types of allergens tested	Food, inhalants, latex, insect venom and cross-reactive components	Food, inhalants, latex and cross-reactive components	Food and inhalants
CCD inhibitor used	Yes	No	No
Turnaround time*	~7 working days	~7 working days	24 hours
Sample requirements	0.5 ml SST (serum) tube	0.5 ml SST (serum) tube	5 ml SST (serum) tube
Mnemonic	**ALEX**	ISAC (replaced by **ALEX**)	PHAD + PED

* Once received at the National Reference Laboratory.

GROUPS OF ALLERGENS TESTED WITH ALEX²:

INHALANTS

- Pollen
- House dust mite and storage mite
- Pets e.g. dog, cat, guinea pig, mouse, hamster and rabbit
- Farm animals e.g. pig, sheep, horse and cow
- Mould and yeast
- Cockroach

FOOD

Plant-based

- Nuts and tree nuts e.g. cashew, Brazil nuts, pecan, hazelnut, walnut, macadamia, pistachio and almonds
- Legumes e.g. peanut, soy, chickpea, lentils, white bean and pea
- Seeds e.g. pumpkin, sunflower, poppy and sesame
- Cereals e.g. oats, quinoa, rice, wheat and maize
- Spices e.g. mustard seed, oregano and parsley
- Vegetables e.g. onion, carrot, tomato, potato, celery and garlic
- Fruit e.g. peach, apple, banana, strawberry, kiwi, papaya and fig

Animal-based

- Milk e.g. cow, camel, goat, mare and sheep
- Egg white and egg yolk
- Meat e.g. cow, chicken, turkey, lamb and pork

Seafood

- Cod, crab, oyster, mussel, salmon, squid and prawn/shrimp

Edible insects

- Mealworms, crickets and locust

VENOMS

- Ant, bee and wasp

OTHER

- Latex

CROSS-REACTIVE COMPONENTS

- CCD, PR-10, profilin, lipid transfer protein (LTP), serum albumin, parvalbumin, tropomyosin, storage proteins and lipocalins

Note: These are examples of allergens detected with ALEX² and is not an exhaustive list of allergens included in the test panel.

INTERPRETATION OF ALEX² ALLERGEN RESULTS

A personalised, user-friendly and interpretive report, outlining individual allergy profiles with relevant supporting information will be provided.

CONCLUSION

The ALEX² test has replaced the ISAC test and aims to improve allergy management through accurate and affordable IgE-mediated allergy diagnosis and risk assessment. Once a diagnosis has been made, the selection of appropriate allergen avoidance strategies, medical therapy and/or immunotherapy will help improve patients' symptom control and quality of life.

For more information, contact the NRL Immunology Laboratory at 012 678 0613/4.