MAYO CLINIC LABORATORIES

Test Definition: BETV2

BET v2 (Profilin), IgE, Serum

Overview

Useful For

Evaluation of patients suspected birch pollen allergy

Evaluation of patients with suspected peanut allergy

Evaluation of patients with oral allergy syndrome to other pollens or plant-based foods

Testing for IgE antibodies is **not useful** in patients previously treated with immunotherapy to determine if residual clinical sensitivity exists or in patients in whom the medical management does not depend upon identification of allergen specificity.

Special Instructions

- Allergens - Immunoglobulin E (IgE) Antibodies

Highlights

This test determines the relative amount of IgE antibody to the cross-reactive profilin, Bet v2.

IgE antibodies to Bet v2 are associated with birch pollen sensitivity and oral allergy syndrome.

The presence of IgE antibodies to Bet v2 represents a potential minor marker of peanut allergenicity.

Antibodies to Bet v2 may be associated with broad allergenic cross-reactivity with other profilin containing pollens or foods.

Method Name

Fluorescence Enzyme Immunoassay (FEIA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Ordering Guidance

For a listing of allergens available for testing, see Allergens - Immunoglobulin E (IgE) Antibodies.

BET v2 is also available as part of the PEANT / Peanut, IgE with Reflex to Peanut Components, IgE, Serum. This reflex test

includes Ara h2, h1, h3, h6, h9, and Bet v2 (profilin) if the initial Peanut IgE test is detectable.

Specimen Required

Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 0.5 mL for every 5 allergens requested
Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Forms

If not ordering electronically, complete, print, and send an Allergen Test Request (T236) with the specimen.

Specimen Minimum Volume

For 1 allergen: 0.3 mL
For more than 1 allergen: (0.05 mL x number of allergens) + 0.25 mL deadspace

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	14 days	
	Ambient	7 days	
	Frozen	90 days	

Clinical & Interpretive

Clinical Information

Immunoglobulin E antibodies to the Bet v 2a profilin protein have been reported in 10% to 38% of birch pollen-allergic patients. Birch pollen is highly allergenic and is a significant cause of immediate hypersensitivity, affecting as much as 5% to 50% of the population of Western Europe. The presence of antibodies to Bet v 2, may also indicate sensitivity to other profilin containing pollens including ragweed pollen, mugwort pollen, and timothy grass pollen.

The profilin Bet v2 is related to, and cross-reactive with, antibodies to the potential peanut allergen profilin Ara h5. As profilin proteins are present in many other foods, sensitivity to profilin Bet v2 may be associated in broad allergen cross-reactivity among foods, including mango, peach, apple, hazelnut, celery, carrot, paprika, anise, fennel, coriander, cumin, tomato, and potato.

The most common manifestation of allergy to food in profilin related allergic individuals is oral allergy syndrome. Profilins are generally not resistant to heat and digestion. Individuals with birch pollen allergy and oral allergy syndrome are more frequently allergic to apples and peaches than to other foods. In cases of allergic reaction associated with oral allergy syndrome, rhinitis, itching, tingling, and other mild reactions on the oropharyngeal mucosa were reported to be the most common complaints.

Reference Values

Class	IgE kU/L	Interpretation
0	<0.10	Negative
0/1	0.10-0.34	Borderline/Equivocal
1	0.35-0.69	Equivocal
2	0.70-3.49	Positive
3	3.50-17.4	Positive
4	17.5-49.9	Strongly positive
5	50.0-99.9	Strongly positive
6	> or =100	Strongly positive

Reference values apply to all ages.

Concentrations > or =0.70 kU/L (Class 2 and above) will flag as abnormally high.

Interpretation

Profilins are potentially cross-reactive allergenic proteins found in many plant pollens and tissues. IgE antibodies to the profilin Bet v2, while associated with birch pollen sensitivity, also represent a minor peanut allergen marker as it is cross-reactive with the peanut profilin Ara h5. The presence of antibodies to profilin Bet v2 is typically associated with milder allergic reactions and oral allergy syndrome.

Cautions

Results from IgE antibody testing must be interpreted in the context of patient's clinical evaluation and history of allergen exposures.

The major allergen in birch pollen is Bet v1 (which is homologous to the peanut allergen Ara h8), as antibodies to the Bet v1 is found in as many as 95% in birch pollen patients. In cases of suspected birch pollen allergy, testing for antibodies to the profilin Bet v1 should be considered in addition to this test for profilin Bet v2 antibodies.

Positive results for IgE to peanut allergy markers, such as profilin Bet v2, are not diagnostic for peanut allergy and only indicate that the patient may be sensitized to peanut component or a cross-reactive allergen. Clinical correlation of results from in vitro IgE testing with patient history of allergic or anaphylactic responses to peanut is recommended.

False-positive results for IgE antibodies may occur in patients with markedly elevated serum IgE (>2500 kU/L) due to nonspecific binding to allergen solid phases.

Clinical Reference

1. Anhoej C, Backer V, Nolte H: Diagnostic evaluation of grass- and birch-allergic patients with oral allergy syndrome. Allergy. 2001 Jun;56(6):548-552. doi: 10.1034/j.1398-9995.2001.056006548.x

2. Sekerkova A, Polackova M: Detection of Bet v1, Bet v2 and Bet v4 specific IgE antibodies in the sera of children and

adult patients allergic to birch pollen: evaluation of different IgE reactivity profiles depending on age and local sensitization. Int Arch Allergy Immunol. 2011;154(4):278-85. doi: 10.1159/000321819
3. D'Amato G, Cecchi L, Bonini S, et al: Allergenic pollen and pollen allergy in Europe. Allergy. 2007 Sep;62(9):976-990. doi: 10.1111/j.1398-9995.2007.01393.x
4. Cabanos C, Tandang-Silvas MR, Odijk V, et al: Expression, purification, cross-reactivity and homology modeling of peanut profilin. Protein Expr Purif. 2010 Sep;73(1):36-45. doi: 10.1016/j.pep.2010.03.005
5. Bublin M, Breiteneder H: Cross-reactivity of peanut allergens. Curr Allergy Asthma Rep. 2014 Apr;14(4):426. doi: 10.1007/s11882-014-0426-8
6. Chan ES, Greenhawt MJ, Fleischer DM, Caubet JC: Managing cross-reactivity in those with peanut allergy. J Allergy Clin Immunol Pract. 2019 Feb;7(2):381-386. doi: 10.1016/j.jaip.2018.11.012
7. Simberloff T, Parambi R, Bartnikas LM, et al: Implementation of a standardized clinical assessment and management plan (SCAMP) for food challenges. J Allergy Clin Immunol Pract. 2017 Mar-Apr;5(2):335-344.e3. doi:10.1016/j.jaip.2016.05.021

Performance

Method Description
Specific IgE from the patient's serum reacts with the allergen of interest, which is covalently coupled to an ImmunoCAP. After washing away nonspecific IgE, enzyme-labeled anti-IgE antibody is added to form a complex. After incubation, unbound anti-IgE is washed away, and the bound complex incubated with a developing agent. After stopping the reaction, the fluorescence of the eluate is measured. Fluorescence is proportional to the amount of specific IgE present in the patient's sample (ie, the higher the fluorescence value, the more IgE antibody is present).(Package insert: ImmunoCAP System Specific IgE FEIA. Phadia; Rev 02/2024)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
Same day/1 to 3 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

86008

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
BETV2	BET v2 (Profilin), IgE, S	30985-6

Result ID	Test Result Name	Result LOINC® Value
BETV2	BET v2 (Profilin), IgE, S	30985-6