MAYO CLINIC LABORATORIES

Test Definition: HRSPF

Horse Dander, IgE with Reflex to Horse Dander Component, IgE, Serum

Overview

Useful For

Evaluating patients with suspected horse dander allergy

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

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
HRSPR	Horse Dander Component, IgE, S	No	No

Testing Algorithm

Testing begins with analysis of total horse dander IgE. If horse dander total IgE is negative (<0.10 kU/L), testing is complete.

If horse dander total IgE is 0.10 kU/L or more, then horse dander component (Equ c 1) testing is performed at an additional charge.

Special Instructions

- Allergens - Immunoglobulin E (IgE) Antibodies

Highlights

The determination of the relative amount of IgE antibody to total horse dander, and IgE antibodies to specific horse dander component, can aid in assessment of the potential strength and type of allergenic response to horse dander.

Immunoglobulin E (IgE) antibody to total horse dander extract will initially be tested.

If detectable total horse dander IgE antibody is present, additional specific horse dander allergen antibody testing will be performed. This is comprised of testing for IgE antibodies to the potential allergen Equ c 1.

Method Name

Fluorescent 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

Specimen Required

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 0.6 mL
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

0.4 mL

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	
	Frozen	90 days	

Clinical & Interpretive

Clinical Information

Horse (equine) allergen sensitization occurs in approximately 5% to 15% of individuals exposed to horses in occupational settings. The assessment of allergies to horses is dependent upon the presence of compatible clinical symptoms in the context of exposure, with support from identification of potential equine-specific IgE allergen antibodies, either by skin testing or in vitro serology testing. In vitro testing has generally focused on assessing the presence of IgE antibodies to total horse allergen extracts.

There is a correlation between total horse IgE allergen antibodies and an increased likelihood of a clinical allergic response. Once an elevated antibody response to total horse dander IgE extract is established, assessment for the presence of specific IgE antibodies to the major equine component will be performed. This may yield additional, potentially useful information for the clinical assessment of allergies and sensitization. During horse component allergen IgE antibody testing, the presence of IgE antibodies specific to the potential allergenic individual protein, namely Equ c 1, is assessed. The determination of the relative amount of IgE antibody to specific component can aid in assessment of the potential strength and type of allergenic response.

While several horse allergens have been described, the lipocalin Equ c 1 is the major horse allergen, and antibodies to this allergen are present in 76% of individuals exhibiting allergy to horses. The main source of exposure of Equ c 1 is inhalation. However, individuals can be exposed by contact with contaminated clothing and, potentially, through horse bites. Mattresses containing horsehair may also be a potential route of exposure. Individuals who are allergic to horses may exhibit allergic rhinitis, conjunctivitis, asthma, anaphylaxis, and allergy to other foods and animals.(1) To date, the existence of completely hypoallergenic horse breeds has not been verified.

Sensitization to horses may also occur through cross-reactivity, with as many as 30% of individuals with pet allergies also reporting an allergic reaction to horses. As many as 50% of individuals with cross-reactive allergen sensitization are caused by cross reactive to horse lipocalin as represented by Equ c 1. Cross-reactivity has been shown to exist between horse lipocalin allergen Equ c 1, cat lipocalin allergen Fel d4, and dog lipocalin allergen Can f 6.

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

Concentrations of 0.70 kU/L or more (class 2 and above) will flag as abnormally high.
Reference values apply to all ages.

Interpretation

When detectable total horse dander IgE antibody is present (> or =0.10 IgE kU/L), additional specific component IgE antibody testing will be performed. If the specific allergenic horse dander component IgE is detectable (> or =0.10 IgE kU/L), an interpretative report will be provided.

When the specimen is negative for total horse dander IgE antibody (<0.10 IgE kU/L), additional testing for specific horse dander component IgE antibodies will not be performed. Negative IgE results for total horse dander antibody may indicate a lack of sensitization to potential horse dander allergenic components.

Cautions

Clinical correlation of results from in vitro IgE testing with a patient history of allergic or anaphylactic responses to horse dander is recommended.
-Negative results for IgE to total horse dander and any horse dander components do not completely exclude the possibility of clinically relevant allergic responses upon exposure to horse dander.
-Positive results for IgE to total horse dander or any potential horse dander allergenic components are not diagnostic for horse dander allergy and only indicate that the patient may be sensitized to horse dander or a cross-reactive allergen.

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. Arseneau AM, Hrabak TM, Waibel KH. Inhalant horse allergens and allergies: a review of the literature. Mil Med. 2012;177(7):877-882
2.Salo PM, Arbes SJ Jr, Jaramillo R, et al. Prevalence of allergic sensitization in the United States: results from the National Health and Nutrition Examination Survey (NHANES) 2005-2006. J Allergy Clin Immunol. 2014;134(2):350-359. doi:10.1016/j.jaci.2013.12.1071
3.Guida G, Nebiolo F, Heffler E, Bergia R, Rolla G. Anaphylaxis after a horse bite. Allergy. 2005;60(8):1088-1089
4.Saarelainen S, Rytkonen-Nissinen M, Rouvinen J, et al. Animal-derived lipocalin allergens exhibit immunoglobulin E cross-reactivity. Clin Exp Allergy. 2008;38(2):374-381
5.Chan SK, Leung DYM. Dog and cat allergies: Current state of diagnostic approaches and challenges. Allergy Asthma Immunol Res. 2018;10(2):97-105. doi:10.4168/aair.2018.10.2.97
6.Chruszcz M, Mikolajczak K, Mank N, Majorek KA, Porebski PJ, Minor W: Serum albumins-unusual allergens. Biochim Biophys Acta. 2013;1830(12):5375-81
7.Nwaru BI, Suzuki S, Ekerljung L, et al. Furry animal allergen component sensitization and clinical outcomes in adult asthma and rhinitis. J Allergy Clin Immunol Pract..2019;7(4):1230-1238.e4
8.Hilger C, van Hage M, Kuehn A. Diagnosis of allergy to mammals and fish: Cross-reactive vs. specific markers. Curr Allergy Asthma Rep. 2017;17(9):64

Performance

Method Description

Specific IgE from the patient's serum reacts with the allergen of interest, 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 AB; Rev 06/2020)

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
86003

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HRSPF	Horse Dander Component Reflex, S	6143-2

Result ID	Test Result Name	Result LOINC® Value
HORS1	Horse Dander, IgE, S	6143-2