MAYO CLINIC LABORATORIES

Test Definition: BLAST

Blastomyces Antibody, Enzyme Immunoassay, Serum

Overview

Useful For
Aiding in the diagnosis of blastomycosis

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
SBL	Blastomyces Ab, Immunodiffusion, S	Yes, (SBL)	No

Testing Algorithm
If result is equivocal or positive, *Blastomyces* antibody by immunodiffusion will be performed at an additional charge.

For more information see Meningitis/Encephalitis Panel Algorithm.

Special Instructions
- Meningitis/Encephalitis Panel Algorithm

Method Name
Enzyme Immunoassay (EIA)

NY State Available
No

Specimen

Specimen Type
Serum

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: 1 mL Serum
Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Kidney Transplant Test Request
-Infectious Disease Serology Test Request (T916)

Specimen Minimum Volume
Serum: 0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Heat inactivated specimen	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information
Blastomyces dermatitidis, a dimorphic fungus, is endemic throughout the Midwestern, South-central, and Southeastern US, particularly in regions around the Ohio and Mississippi river valleys, the Great Lakes, and the Saint Lawrence River. It is also found in regions of Canada. *Blastomyces* is an environmental fungus, preferring moist soil and decomposing organic matter, which produces fungal spores that are released and inhaled by animals or humans. At body temperature, the spores mature into yeast, which can stay in the lungs or disseminate through the bloodstream to other parts of the body. Recently, through phylogenetic analysis, *B dermatitidis* has been separated into 2 distinct species; *B dermatitidis* and *Blastomyces gilchristii,* both able to cause blastomycosis in infected patients. Interestingly, *B dermatitidis* infections are associated more frequently with dissemination, particularly in older adults, individuals who smoke, and those who are immunocompromised, while *B gilchristii* has primarily been associated with pulmonary and constitutional symptoms.

Approximately 50% of patients infected with *Blastomyces* will develop symptoms, which are frequently nonspecific and include fever, cough, night sweats, myalgia or arthralgia, weight loss, chest pain and fatigue. Typically, symptoms appear anywhere from 3 weeks to 3 months following infection.

Diagnosis of blastomycosis relies on a combination of assays, including culture and molecular testing on appropriate specimens and serologic evaluation for both antibodies to and antigen released from *Blastomyces.* Although culture remains the gold standard method and is highly specific, the organism can take several days to weeks to grow, and

sensitivity is diminished in cases of acute or localized disease. Similarly, molecular testing offers high specificity and a rapid turnaround time, however, sensitivity is imperfect. Detection of an antibody response to *Blastomyces* offers high specificity, however, results may be falsely negative in acutely infected patients and in patients who are immunosuppressed.

Reference Values

Negative
Reference values apply to all ages.

Interpretation

A positive result indicates that IgG and/or IgM antibodies to *Blastomyces* were detected. The presence of antibodies is presumptive evidence that the patient was or is currently infected with (or was exposed to) *Blastomyces*.

A negative result indicates that antibodies to *Blastomyces* were not detected. The absence of antibodies is presumptive evidence that the patient was not infected with *Blastomyces*. However, the specimen may have been obtained before antibodies were detectable or the patient may be immunosuppressed. If infection is suspected, another specimen should be collected 7 to 14 days later and submitted for testing.

Specimens testing positive or equivocal will be submitted for further testing by another conventional serologic test (eg, SBL / *Blastomyces* Antibody by Immunodiffusion, Serum).

Cautions

A negative result does not rule out blastomycosis.

Cross-reactivity may occur with other fungal infections, such as *Aspergillus*, *Coccidioides*, or *Histoplasma*.

Clinical Reference

1. Kaufman L, Kovacs JA, Reiss E. Clinical immunomycology. In: Rose NR, De Macario EC, Folds JD, et al, eds. Manual of Clinical and Laboratory Immunology. ASM Press; 1997:588-589
2. O'Dowd TR, Mc Hugh JW, Theel ES, et al. Diagnostic methods and risk factors for severe disease and mortality in Blastomycosis: A retrospective cohort study. J Fungi (Basel). 2021;7(11):888. doi:10.3390/jof7110888

Performance

Method Description

The Omega *Blastomyces* Total Antibody EIA (enzyme immunoassay) uses microwells coated with purified *Blastomyces* yeast-phase antigen. Patient specimen is diluted in diluent buffer and incubated in the coated microwell. If present, IgG and/or IgM antibodies will bind to the antigen. The microwells are washed to remove unbound serum components. A secondary antibody, rabbit antihuman IgG and IgM antibody conjugated to horseradish peroxidase, is added to the microwell and incubated. The secondary antibody will bind to the antibody-antigen complexes. The microwells are washed to remove unbound conjugate. Substrate solution containing urea peroxide and tetramethylbenzidine is added to the microwells, causing a color change. After a final incubation period, a stop solution is added to the microwells, and the color change is quantified by measuring the optical density (OD). Sample OD readings are compared to calibrator

cutoff OD readings to determine results.(Package insert: Omega *Blastomyces* Total Antibody EIA. Immuno-Mycologics, Inc; Revision 01/24/2018)

PDF Report
No

Day(s) Performed
Monday, Wednesday, Friday

Report Available
1 to 3 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Jacksonville Clinical Lab

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
86612
86612 (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
BLAST	Blastomyces Ab, EIA, S	7816-2

Result ID	Test Result Name	Result LOINC® Value
BLAST	Blastomyces Ab, EIA, S	7816-2