MAYO CLINIC LABORATORIES

Test Definition: UBLAS

Blastomyces Antigen, Quantitative, Enzyme Immunoassay, Random, Urine

Overview

Useful For

Diagnosis of infection with *Blastomyces dermatitidis*

Monitor antigen levels following initiation of antifungal treatment

Highlights

Alongside other routine methods including culture, molecular testing, and serology, this test aids in the diagnosis of infection with *Blastomyces dermatitidis*.

Sensitivity for detection of antigen released from other species of *Blastomyces* is unknown.

Method Name

Enzyme Immunoassay (EIA)

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Supplies: Aliquot tube, 5 mL (T465)
Container/Tube: Plastic vial
Specimen Volume: 4 mL
Collection Instructions:
1. Collect a random urine specimen.
2. No preservative.
3. **Do not** centrifuge to remove particulates.

Forms

If not ordering electronically, complete, print, and send Infectious Disease Serology Test Request (T916) with the specimen.

Specimen Minimum Volume

2.5 mL

Reject Due To

Gross hemolysis	Reject
Turbid Colored	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	14 days	
	Frozen	28 days	
	Ambient	7 days	

Clinical & Interpretive

Clinical Information

Blastomyces dermatitidis is endemic throughout the Midwestern, south central, and Southeastern United States, 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* species are dimorphic fungi, preferring moist soil and decomposing organic matter, which produces fungal spores that are released and inhaled by humans. At body temperature, spores mature into yeast, which may remain in the lungs or disseminate through the bloodstream to other parts of the body. Through phylogenetic analysis, *B. dermatitidis* has been separated into 2 distinct species: *B dermatitidis* and *Blastomyces gilchristii,* both able to cause blastomycosis. *B dermatitidis* infections are frequently associated with dissemination, particularly in older patients, smokers, and immunocompromised hosts, while *B gilchristii* has primarily been associated with pulmonary and constitutional symptoms. Additional species of *Blastomyces* have recently been discovered and characterized, however the performance characteristics of this assay for these species are unknown.

Approximately half of patients infected with *Blastomyces* will develop symptoms, which are frequently nonspecific, including fever, cough, night sweats, myalgia or arthralgia, weight loss, dyspnea, chest pain, and fatigue. Symptoms may appear anywhere from 3 weeks to 3 months following infection. Diagnosis of blastomycosis relies on a combination of assays, including culture and molecular testing performed 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 patients who are acutely ill or are immunosuppressed.

Reference Values

BLASTOMYCES ANTIGEN RESULT
Not detected

BLASTOMYCES ANTIGEN VALUE
Not detected: 0.0 ng/mL

Detected: <1.3 ng/mL
Detected: 1.3-20.0 ng/mL
Detected: >20.0 ng/mL

Interpretation

Not Detected: No *Blastomyces* antigen detected. False negative results may occur. Repeat testing on a new specimen should be considered if clinically indicated.

Detected: *Blastomyces* antigen detected, below the limit of quantification (<1.3 ng/mL). Results should be correlated with clinical presentation, exposure history, and other diagnostic procedures, including culture, serology, histopathology, and radiographic findings, for the diagnosis of blastomycosis. False-positive results may occur in patients with other fungal infections, including *Histoplasma*.

Detected: *Blastomyces* antigen detected. The reportable range of this assay is 1.3 to 20.0 ng/mL. Results should be correlated with clinical presentation, exposure history, and other diagnostic procedures, including culture, serology, histopathology, and radiographic findings, for the diagnosis of blastomycosis. False-positive results may occur in patients with other fungal infections, including *Histoplasma*.

Detected: *Blastomyces* antigen detected, above the limit of quantification (>20.0 ng/mL). Results should be correlated with clinical presentation, exposure history, and other diagnostic procedures, including culture, serology, histopathology, and radiographic findings, for the diagnosis of blastomycosis. False-positive results may occur in patients with other fungal infections, including *Histoplasma*.

Cautions

Cross-reactivity with other fungal infections, including *Histoplasma capsulatum*, may occur. Positive results should be correlated with other clinical and laboratory findings (eg, culture, serology).

Low-level positive antigen levels may persist following resolution of infection and completion of appropriate treatment regimen.

Turbid urine specimens, containing excess protein, cells, or particulate matter, can inhibit the function of the test.

Sensitivity of this assay to detect antigen from species other than *Blastomyces dermatitidis* is unknown.

Clinical Reference

1. McBride JA, Gauthier GM, Klein BS: Clinical manifestations and treatment of Blastomycosis. Clin Chest Med. 2017 Sep;38(3):435-449
2. Saccente M, Woods GL: Clinical and laboratory update on Blastomycosis. Clin Microbiol Rev. 2010 Apr;23(2):367-381. doi: 10.1128/CMR.00056-09

Performance

Method Description

The assay detects *Blastomyces dermatitidis* antigen shed in human urine samples using specific, proprietary antibodies in an enzyme-linked immunosorbent assay format. The detection method involves an enzyme/substrate system with the level of urinary *B dermatitidis* antigen proportional to the assay signal. The patient specimen result is compared to a cutoff calibrator and a standard curve of a series of assay calibrators (1.25 to 20.00 ng/mL) to determine the presence or absence of antigen, and if present, to establish a quantitative level of *B dermatitidis* urinary antigen.(Package insert: *Blastomyces dermatitidis* Urinary Antigen Detection Kit. Gotham Biotechnology; Version 001, Revision 002. 10/29/2020)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
Same day/1 to 3 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

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 Regional Manager. For assistance, contact Customer Service.

Test Classification
This test was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
87449

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
UBLAS	Blastomyces Ag, Quant EIA, U	In Process

Result ID	Test Result Name	Result LOINC® Value
BLASQ	Blastomyces Ag Result	41746-9

DEXBU	Blastomyces Ag Value	93429-9