Overview

Useful For
Aiding in the diagnosis of *Histoplasma capsulatum* infection

Monitoring *Histoplasma* antigen levels in urine

Reflex Tests

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Reporting Name</th>
<th>Available Separately</th>
<th>Always Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMVHU</td>
<td>MVista Histoplasma Ag, U</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Testing Algorithm
If antigen test is indeterminate, the specimen will be sent to MiraVista Laboratories and *Histoplasma* antigen will be performed at an additional charge.

Method Name
Enzyme Immunoassay (EIA)

NY State Available
Yes

Specimen

Specimen Type
Urine

Specimen Required
Supplies: Aliquot tube, 5-mL (T465)

Container/Tube: Plastic, 5-mL aliquot tube

Specimen Volume: 3 mL

Collection Instructions:
1. Collect a random urine specimen.
2. No preservative.
3. Do not centrifuge to remove particulate matter.

Forms
If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:

- General Request (T239)
Test Definition: UHIST
Histoplasma Ag, U

- Microbiology Test Request (T244)
Specimen Minimum Volume
2.5 mL

Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>Reject</td>
</tr>
<tr>
<td>Colored</td>
<td>Reject</td>
</tr>
<tr>
<td>Turbid</td>
<td>Reject</td>
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</table>

Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine</td>
<td>Refrigerated (preferred)</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>14 days</td>
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Clinical and Interpretive

Clinical Information

*Histoplasma capsulatum* is a dimorphic fungus endemic to the Midwestern United States, particularly along the Mississippi River and Ohio River valleys. Infection occurs following inhalation of fungal microconidia and subsequent clinical manifestations are largely dependent on the fungal burden at the time of exposure and the patient's underlying immune status. While the vast majority (>90%) of exposed individuals will remain asymptomatic, individuals seeking medical attention can present with a diverse set of symptoms ranging from a self-limited pulmonary illness to severe, disseminated disease. Individuals at risk for severe infection include those with impaired cellular immunity, patients who have undergone organ transplantation, are HIV positive, or have a hematologic malignancy.

The available laboratory methods for the diagnosis of *H capsulatum* infection include fungal culture, molecular techniques, serologic testing, and antigen detection. While culture remains the gold standard diagnostic test and is highly specific, prolonged incubation is often required and sensitivity decreases (9%-34%) in cases of acute or localized disease. Similarly, molecular methods offer high specificity, but decreased sensitivity. Serologic testing likewise offers high specificity; however, results may be falsely negative in immunosuppressed patients or those who present with acute disease. Also, antibodies may persist for years following disease resolution, thereby limiting the clinical specificity.

Detection of *H capsulatum* antigen from urine samples has improved sensitivity (80%-95%) for the diagnosis of active histoplasmosis compared to both culture and serology. Additionally, urine antigen levels can be followed to monitor patient response to therapy, with declining levels consistent with disease resolution. Notably, however, *H capsulatum* antigen may persist at low levels following completion of antifungal therapy and clinical improvement.

Reference Values

HISTOPLASMA ANTIGEN RESULT

Negative

HISTOPLASMA ANTIGEN VALUE
Negative: 0.00-0.10

Indeterminate: 0.11-1.10

Positive: > or =1.11

**Interpretation**

Presence of *Histoplasma* antigen in urine is indicative of current or recent infection with *Histoplasma capsulatum*.

Declining levels of *Histoplasma* antigen are indicative of disease regression and can be used to monitor patient response to antifungal therapy. Notably, low-level titers may persist for extended periods of time following appropriate treatment and resolution of infection.

Urine samples with "Indeterminate" results are automatically reflexed to MiraVista Diagnostics for supplemental testing. Clinical decisions regarding *Histoplasma* infection should not be based on an indeterminate result alone. Other laboratory findings, including *Histoplasma* serology, fungal culture, and molecular tests (eg, reverse transcription-polymerase chain reaction: RT-PCR) should be considered, alongside clinical presentation and exposure history, to confirm the diagnosis.

The absence of detectable *Histoplasma* antigen in urine suggests the absence of infection. Repeat testing on a fresh urine sample if early acute *Histoplasma* infection is suspected. Notably, patients with acute pulmonary infection or in patients with otherwise localized disease, the *Histoplasma* urine antigen test may be negative.

**Cautions**

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

Low-level positive or indeterminate titers may persist following resolution of infection and completion of appropriate treatment regimen.

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

**Clinical Reference**


**Performance**

**Method Description**

The Immy *Histoplasma* Galactomannan enzyme immunoassay (EIA) is an immunoenzymatic, sandwich microplate assay that detects *Histoplasma* galactomannan (GM) in urine. Monoclonal antibodies directed against *Histoplasma* GM are bound to microwell plates and conjugated to horseradish peroxidase (HRP) to be used as capture and detect reagents. Urine samples are run untreated and undiluted. Samples and controls are incubated in the wells to allow histoplasma antigens (if present in the sample) to react with the antibodies. Nonspecific reactants are removed by washing and HRP-conjugated detection antibodies are added, which reacts with the antigen complex bound to the antibodies. Excess conjugate is removed by washing. A substrate is added, and the color allowed to develop. The reaction is stopped by the addition of a stop solution. The optical density (absorbance) is determined with a
Test Definition: UHIST
Histoplasma Ag, U

microplate reader. (Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Monday through Sunday; 9 a.m.

Analytic Time
Same day/1 day

Maximum Laboratory Time
2 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees and 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 U.S. Food and Drug Administration.

CPT Code Information
87385-x 2 (if appropriate)

LOINC® Information

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<th>Order LOINC Value</th>
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<td>Histoplasma Ag, U</td>
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<td>Histoplasma Ag Result</td>
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<tr>
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<td>Histoplasma Ag Value</td>
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