MiraVista DIAGNOSTICS

Rapid Fungal Testing. Accurate Results.

Hc Histoplasma

Improve Diagnosis of Acute Pulmonary Histoplasmosis by Combining Antigen and Antibody Testing

NEW: MVista® Anti-Histoplasma IgG and IgM Antibody Enzyme-Immunoassay

CLINICAL BACKGROUND:

Acute pulmonary histoplasmosis (APH) can be severe, especially following heavy exposure and is characterized by systemic and respiratory symptoms typically beginning 5 days to 3 weeks following exposure. The diagnosis of APH is often suspected when multiple individuals present with similar clinical findings following a common activity involving disturbance of a site contaminated with bird or bat guano. Rapid diagnosis is critical and often possible by detection of antigen in serum or urine. In one study, antigen was present in 83% of acute pulmonary histoplasmosis cases, but 38% would have been missed if only urine was tested. Testing for antibody could assist in the diagnosis of cases with negative antigen results, especially those with mild to moderate disease.

RESULTS:

The MVista® *Histoplasma* antibody EIA was most sensitive in the epidemiological cases (96.0%). A statistical increase in sensitivity was seen over CF, ID and antigen detection in the epidemiological cases ($P = .003$, $P < .001$, and $P < .001$, respectively) and over ID within the clinical cases ($P = .002$). The MVista® antigen or MVista® antibody EIA was positive in 27 of 30 clinical (90%) and in all 50 epidemiological cases (100.0%). Combining antigen and antibody detection using the MVista EIAs increased overall sensitivity to 96%.

Comparison of Diagnostic Test Results in Clinical and Epidemiological Cases

Patients who presented with acute pulmonary histoplasmosis are described as “clinical” and those who were identified during outbreak investigation as meeting case definition, but did not seek clinical care, as “epidemiological”.

TEST	ALL	CLINICAL	EPIDEMIOLOGICAL
MVista® Histoplasma IgG Antibody EIA	70/80 (87.5%)	22/30 (73.3%)	48/50 (96.0%)
MVista® Histoplasma IgM Antibody EIA	54/80 (67.5%)	19/30 (63.3%)	35/50 (70.0%)
MVista® Histoplasma IgG or IgM Antibody EIA	71/80 (88.8%)	23/30 (76.7%)	48/50 (96.0%)
Commonly Utilized Histoplasma Antibody EIA Kit	39/97 (68.5%)	12/22 (54.5%)	27/35 (77.1%)
Histoplasma CF Yeast or Mycelial ≥1:8	49/67 (73.1%)	12/18 (66.7%)	37/49 (75.5%)
Histoplasma ID	45/80 (56.3%)	11/30 (36.7%)	34/50 (68.0%)
Histoplasma CF or ID	65/80 (81.3%)	19/30 (63.3%)	46/50 (92.0%)
MVista® Histoplasma Urine Antigen	32/75 (42.7%)	14/26 (53.8%)	18/49 (36.7%)
MVista® Histoplasma Serum Antigen	50/79 (63.3%)	22/30 (73.3%)	28/49 (57.1%)
MVista® Urine or Serum Antigen	54/80 (67.5%)	23/30 (76.7%)	31/50 (62.0%)
MVista® Antibody or Antigen	77/80 (96.3%)	27/30 (90.0%)	50/50 (100.0%)

Data are proportion (%) of persons with positive results.

Abbreviations: CF, complement fixation; EIA, enzyme immunoassay; ID, immunodiffusion; IgG, immunoglobulin G; IgM, immunoglobulin M

REFERENCES

Richer SM, Smedema ML, Durkin MM, et al. Improved Diagnosis of Acute Pulmonary Histoplasmosis by Combining Antigen and Antibody Detection. Clin Infect Dis 2016; 62:896-902.

MiraVista DIAGNOSTICS

Rapid Fungal Testing. Accurate Results.

CONCLUSIONS:

The MVista® *Histoplasma* antibody EIA offers distinct advantages over currently available tests and may aid in the improved diagnosis of acute pulmonary histoplasmosis, which can be difficult to diagnose due to false-negative results in antigen tests, ID and CF tests. The MVista® Histoplasma antibody EIA complements antigen detection and shows increased sensitivity compared to ID, CF, and antigen testing alone. Additionally, the MVista® antibody EIA offers semi-quantitative detection of IgG and IgM antibodies, which may help to distinguish current from past infection. Combining antigen and antibody testing using the MVista® EIAs provides the highest sensitivity (96%) for diagnosing acute pulmonary histoplasmosis.

MVista® Histoplasma Antibody IgG, IgM EIA

TEST CODE: 326

CPT CODE: 86635 x2

SPECIMEN COLLECTION:

- **Serum:** Collect serum specimens in serum separator or red top tube. Allow blood to clot for 30 minutes, then centrifuge. Pipette serum into a plastic screw cap vial.
- **CSF:** Sterile transport tube

MINIMUM SPECIMEN REQUIREMENTS:

- **Serum:** 0.5 mL

SPECIMEN STABILITY:

- **Room Temperature:** 14 days
- **Refrigerated:** 14 days
- **Frozen:** 14 days

SPECIMEN REJECTION:

- >14 days old
- Any specimen other than serum or CSF
- For specimen submissions that do not meet this criteria, please call Customer Service

TRANSPORT TEMPERATURE: Refrigerated/Frozen

SHIPPING INSTRUCTIONS:
Ship on dry ice or frozen packs for next day service. Monday - Friday delivery.

TURNAROUND: Testing performed Monday and Thursday

- **Serum or CSF:** Next Day

REFERENCE RANGE: Negative

INTERPRETATIVE INFORMATION:

- **Negative:** <8.0 EU
- **Intermediate:** 8.0 EU-9.9 EU
- **Positive:** 10.0 EU-80.0 EU
- **Positive Above the Limit of Quantification:** >80.0 EU

METHODOLOGY:
Semi-Quantitative Indirect Enzyme Immunoassay (EIA)

LIMITATIONS:

- 2% cross reactivity with Blastomycosis
- 24% cross reactivity with Coccidioidomycosis

CLINICAL SIGNIFICANCE:
IgM and IgG antibodies to Histoplasma antigen usually appear during the first month of infection. The IgM antibody response in acute pulmonary histoplasmosis is detectable during the acute phase (roughly 3 weeks) and is shown to decline during the convalescent stage (at about 6 weeks); whereas, IgG levels remained relatively constant at 6 weeks. Follow-up testing may be considered 2 - 4 weeks after initial testing to determine if antibody levels are increasing, especially in patients with low positive (10 EU – 20 EU) or intermediate results. Increase in IgG antibody or decrease in IgM concentration would suggest recent infection. Antibodies may persist for several years in patients with chronic pulmonary complications or progressive extrapulmonary (disseminated) histoplasmosis. Antibodies may be falsely-negative in some progressive or chronic cases, especially in immunocompromised patients. Antibodies may also be detected in healthy subjects who are asymptomatic as a result of sub-clinical infection within the last 18-36 months.

HEADQUARTERS: 4705 Decatur Blvd. Indianapolis, IN 46241 **MAIN:** 866.647.2847 **FAX:** 317.856.3685 **MIRAVISTALABS.COM**