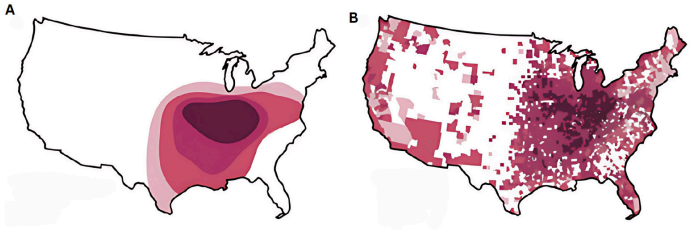
MiraVista DIAGNOSTICS

Rapid Fungal Testing. Accurate Results.

CLINICAL DIAGNOSIS

Diagnosing Histoplasmosis in Changing Endemic Environments

The geographic distribution of diagnosed cases of *histoplasma* is challenging our long held understanding of the traditionally endemic region. Travel and population shifts from Central and Midwest regions of the US have resulted in histoplasmosis being identified in most areas of the country.



This, along with the indeterminant and sometimes vague symptoms, can result in delayed diagnosis especially in acute pulmonary cases. Early testing by front line clinicians is needed to aid in an accurate diagnosis.

Regardless of the clinical manifestation, antigen detection in both serum and urine remains among the most sensitive methods for diagnosis especially in disseminated disease.

Clinical Considerations

1. Consult with an infectious disease physician experienced in diagnosis and treatment of histoplasmosis.
2. Test both urine and serum for antigen initially.
3. Test serum antibody levels.
4. If histoplasmosis is diagnosed, and the serum antigen is positive, test serum at 3- or 4-month intervals during 12 months of treatment.
5. Once the serum antigen is negative, resume testing the urinary antigen until it is negative.
6. Treat for at least 12 months [11].
7. Continue testing for antigen at 2- or 3-month intervals for 6 months after treatment is stopped and if relapse is suspected.

Common symptoms of histoplasmosis often mistaken for community acquired pneumonia:
Fever, headache, dry cough, chills, chest pain, malaise, myalgias and arthritis

SENSITIVITY OF DIAGNOSTICS METHODS FOR HISTOPLASMOSIS

Assay	Acute Pulmonary	Subacute Pulmonary	Chronic Pulmonary	Meningeal	Disseminated	References
Microscopy		42%	75%	38%$	57-76%	1, 8
Culture	0-75%	54%	58-67%	25-38%$	48-88%	1, 4, 5, 6, 8
Antibody Detection@	64-88%	95%	83%	66-78% (CSF)	58-75%	1, 3, 6, 9, 10
Antigen Detection%	43-83%	31%	20-100%	59-88% (CSF)	84-100%	1, 2, 3, 5, 6, 7, 8, 9, 10
Antibody and Antigen Detection	93-100%*	100%*	100%*	100%*	90-100%*	9, 10

^, Includes proven and probable cases: @, includes immunodiffusion, complement fixation, and ELISA; $, 1 study included data for combined microscopy and culture; %, Includes urine, serum or BALf; *Unpublished data

HEADQUARTERS
4705 Decatur Blvd. | Indianapolis, Indiana 46241 USA

866.647.2847

miravistalabs.com

Version 1 | September 2024

MiraVista DIAGNOSTICS
Rapid Fungal Testing. Accurate Results.

CLINICAL DIAGNOSIS

MVista® *Histoplasma* Antigen EIA

TEST CODE: 310
CPT CODE: 87385

Minimum Specimen Requirements
Serum/Plasma: 1.2mL
CSF: 0.8mL
Urine/BAL/Other Body Fluid: 0.5mL

Specimen Stability
Room Temperature: 14 days
Refrigerated: 14 days
Frozen: Indefinitely

Turnaround Time
Urine/BAL: Same Day
Serum/Plasma/BAL: Next Day
*New positives may require confirmation

Interpretive Information
Positive: 0.2-20.0ng/mL
Positive Above the Limit of Quantification: Results are greater than 20.0ng/mL fall outside the linear range of the assay. These results are positive, but not accurately quantifiable.

MVista® *Histoplasma* Antibody IgG IgM EIA

TEST CODE: 326
CPT CODE: 86698 x2

Minimum Specimen Requirements
Serum: 0.5mL
CSF: 0.15mL
Plasma: 0.15mL
*CSF/Plasma will be reported with a rare specimen comment

Specimen Stability
Room Temperature: 28 days
Refrigerated: 6 months
Frozen: Indefinitely

Turnaround Time
Next Day

Interpretive 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

REFERENCE LIST:

1. Hage CA, Ribes JA, Wengenack NL, Baddour LM, Assi M, McKinsey DS, Hammoud K, Alapat D, Babady NE,Parker M, Fuller D, Noor A, Davis TE, Rodgers M, Connolly PA, El Haddad B, Wheat LJ. A multicenter evaluation of tests for diagnosis of histoplasmosis. Clin Infect Dis. 2011 Sep;53(5):448-54. doi: 10.1093/cid/cir435. Epub 2011 Aug 2. Erratum in: Clin Infect Dis. 2012 Feb 1;54(3):454. PMID: 21810734.
2. Wheat LJ, Connolly P, Durkin M, Book BK, Pescovitz MD. Elimination of false-positive *Histoplasma* antigenemia caused by human anti-rabbit antibodies in the second-generation *Histoplasma* antigen assay. Transpl Infect Dis. 2006 Dec;8(4):219-21. doi: 10.1111/j.1399-3062.2006.00151.x. PMID: 17116135.
3. Bloch KC, Myint T, Raymond-Guillen L, Hage CA, Davis TE, Wright PW, Chow FC, Woc-Colburn L, Khairy RN, Street AC, Yamamoto T, Albers A, Wheat LJ. Improvement in Diagnosis of *Histoplasma* Meningitis by Combined Testing for *Histoplasma* Antigen and Immunoglobulin G and Immunoglobulin M Anti-*Histoplasma* Antibody in Cerebrospinal Fluid. Clin Infect Dis. 2018 Jan 6;66(1):89-94. doi: 10.1093/cid/cix706. PMID: 29020213; PMCID: PMC5850023.
4. Wheat LJ. Diagnosis and management of histoplasmosis. Eur J Clin Microbiol Infect Dis. 1989 May;8(5):480-90. doi: 10.1007/BF01964063. PMID: 2502413.
5. Caceres DH, Knuth M, Derado G, Lindsley MD. Diagnosis of Progressive Disseminated Histoplasmosis in Advanced HIV: A Meta-Analysis of Assay Analytical Performance. J Fungi (Basel). 2019 Aug 18;5(3):76. doi: 10.3390/jof5030076. PMID: 31426618; PMCID: PMC6787751.
6. Schestatsky P, Chedid MF, Amaral OB, Unis G, Oliveira FM, Severo LC. Isolated central nervous system histoplasmosis in immunocompetent hosts: a series of 11 cases. Scand J Infect Dis. 2006;38(1):43-8. doi: 10.1080/00365540500372895. PMID: 16338837.
7. Wheat J, Myint T, Guo Y, Kemmer P, Hage C, Terry C, Azar MM, Riddell J, Ender P, Chen S, Shehab K, Cleveland K, Esguerra E, Johnson J, Wright P, Douglas V, Vergidis P, Ooi W, Baddley J, Bamberger D, Khairy R, Vikram HR, Jenny-Avital E, Sivasubramanian G, Bowlware K, Pahud B, Sarria J, Tsai T, Assi M, Mocherla S, Prakash V, Allen D, Passaretti C, Huprikar S, Anderson A. Central nervous system histoplasmosis: Multicenter retrospective study on clinical features, diagnostic approach and outcome of treatment. Medicine (Baltimore). 2018 Mar;97(13):e0245. doi: 10.1097/MD.0000000000010245. Erratum in: Medicine (Baltimore). 2018 Apr;97(16):e0537. doi: 10.1097/MD.0000000000010537. PMID: 29595679; PMCID: PMC5895412.
8. Hage CA, Davis TE, Fuller D, Egan L, Witt JR, Wheat J, Knox KS. Diagnosis of histoplasmosis by antigen detection in BAL fluid. Chest. 2010;137:623-628.
9. Richer SM, Smedema ML, Durkin MM, Herman KM, Hage CA, Fuller D, Wheat LJ. Improved Diagnosis of Acute Pulmonary Histoplasmosis by Combining Antigen and Antibody Detection. Clin Infect Dis. 2016 Apr 1;62(7):896- 902. doi: 10.1093/cid/ciw007. Epub 2016 Jan 20. PMID: 26797210; PMCID: PMC4787609.
10. Swartzentruber S, Rhodes L, Kurkjian K, Zahn M, Brandt ME, Connolly P, Wheat LJ. Diagnosis of acute pulmonary histoplasmosis by antigen detection. Clin Infect Dis. 2009 Dec 15;49(12):1878-82. doi: 10.1086/648421. PMID: 19911965.
11. Wheat LJ, Freifeld AG, Kleiman MB, et al. Clinical practice guidelines for the management of patients with histoplasmosis: 2007 update by the Infectious Diseases Society of America. Clin Infect Dis 2007 Oct 1; 45(7):807-25.

HEADQUARTERS
4705 Decatur Blvd. | Indianapolis, Indiana 46241 USA

866.647.2847

miravistalabs.com

Version 1 | September 2024