Test Definition: HICSF

Histoplasma Antibody Complement Fixation and Immunodiffusion, Spinal Fluid

Overview

Useful For

Aiding in the diagnosis of *Histoplasma* meningitis using spinal fluid specimens

Testing Algorithm

For more information see Meningitis/Encephalitis Panel Algorithm

Method Name

Complement Fixation (CF)/Immunodiffusion (ID)

NY State Available

Yes

Specimen

Specimen Type

CSF

Ordering Guidance

This test should be ordered if patient is seropositive for *Histoplasma* antibodies in serum.

Specimen Required

Container/Tube: Sterile vial

Specimen Volume: 1 mL

Collection Instructions: Submit specimen from collection vial 1.

Forms

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

Specimen Minimum Volume

0.8 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK

Specimen Stability Information

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

Clinical & 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, who have undergone organ transplantation, who are HIV positive, or who 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.

Reference Values

Anti-Yeast Antibody by Complement Fixation
Negative (positive results reported as titer)

Antibody by Immunodiffusion
Negative (positive results reported as band present)

Interpretation

Any positive serologic result in spinal fluid is significant.

Simultaneous appearance of the H and M precipitin bands indicates active histoplasmosis.

The M band alone indicates active or chronic disease or a recent skin test for histoplasmosis.

Cautions

Antibody levels may be low in spinal fluid in cases of *Histoplasma* meningitis.

Histoplasmin skin tests yield specific antibodies in titratable quantity and may cause difficulties in interpretation.

Cross-reacting antibodies with coccidioidomycosis or blastomycosis may cause false-positive results for *Histoplasmosis*.

Clinical Reference

1. Kaufman L, Kovacs JA, Reiss E. Clinical immunomycology. In: Rose NR, de Macario ED, Folds JD, Lane HC, Nakamura RM, eds. Manual of Clinical Laboratory Immunology. ASM Press; 1997
2. Deepe GS. *Histoplasma capsulatum* Histoplasmosis. In: Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020:3162-3176

Performance

Method Description

Both immunodiffusion and compliment fixation (CF) tests are used to detect antibodies to *Histoplasma capsulatum*. For immunodiffusion, the antigen is a culture filtrate, histoplasmin. H and M precipitin bands are identified. For the CF test, the antigens are histoplasmin and a yeast form of *Histoplasma capsulatum*; the latter is more sensitive.(Roberts GD. Fungi. In: Washington II, JA eds. Laboratory Procedures in Clinical Microbiology. 2nd ed. Springer-Verlag; 1985; Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

3 to 7 days

Specimen Retention Time

14 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Superior Drive

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

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Histoplasma Antibody Complement Fixation and Immunodiffusion, Spinal Fluid

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

86698 x2

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HICSF	Histoplasma Ab CompFix/ImmDiff, CSF	91684-1

Result ID	Test Result Name	Result LOINC® Value
621217	Histoplasma Yeast CompFix, CSF	27209-6
621218	Histoplasma Immunodiffusion, CSF	91682-5