MAYO CLINIC LABORATORIES

Test Definition: PLFA

Cryptococcus Antigen Screen, Lateral Flow Assay, Pleural Fluid

Overview

Useful For

Diagnosis of infection with *Cryptococcus* species

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
PLFAT	Cryptococcus Ag Titer, LFA, PF	No	No

Testing Algorithm

If this screen is positive, the antigen titer will be performed at an additional charge.

Highlights

This test can be used as an adjunct for diagnosis of pulmonary infection with *Cryptococcus* species. Positive results are indicative of infection; however, cryptococcal antigen may remain detectable for prolonged periods of time following disease resolution.

Method Name

Lateral Flow Assay (LFA)

NY State Available

Yes

Specimen

Specimen Type

Pleural Fluid

Additional Testing Requirements

Pleural fluid testing for cryptococcal antigen should also be submitted for routine fungal culture. Order FGEN / Fungal Culture, Routine.

Specimen Required

Container/Tube: Sterile vial

Specimen Volume: 0.5 mL

Collection Instructions: Collect pleural fluid in a sterile vial.

Forms

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

Specimen Minimum Volume
0.25

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Pleural Fluid	Refrigerated (preferred)	21 days	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information
Cryptococcosis is an invasive fungal infection caused by *Cryptococcus neoformans* or *Cryptococcus gattii*. *C neoformans* has been isolated from several sites in nature, particularly weathered pigeon droppings. *C gattii* was previously associated with tropical and subtropical regions only; however, more recently this organism has also been found to be endemic in British Columbia, along the Pacific Northwest, and in the Southeastern US.

Infection is usually acquired via the pulmonary route. Patients are often unaware of any exposure history. Approximately half of the patients with symptomatic disease have a predisposing immunosuppressive condition such as AIDS, steroid therapy, lymphoma, or sarcoidosis. Symptoms may include fever, headache, dizziness, ataxia, somnolence, and cough. While the majority of *C neoformans* infections occur in immunocompromised patient populations, *C gattii* has a higher predilection for infection of healthy individuals.

In addition to the lungs, cryptococcal infections frequently involve the central nervous system (CNS), particularly in patients infected with HIV. Mortality among patients with CNS cryptococcosis may approach 25% despite antibiotic therapy. Untreated CNS cryptococcosis is invariably fatal. Disseminated disease may affect any organ system and usually occurs in immunosuppressed individuals.

Reference Values
Negative

Interpretation
The presence of cryptococcal antigen in pleural fluid is indicative of infection with *Cryptococcus* species.

Monitoring cryptococcal antigen levels to determine response to therapy is discouraged, as antigen levels may persist despite adequate treatment and disease resolution.

A negative result indicates lack of infection; however, rare cases of false-negative results have been reported. Fungal culture should always be ordered alongside antigen testing.

Cautions

A negative result does not preclude diagnosis of cryptococcal infection, particularly if the patient is at risk for cryptococcosis and shows symptoms consistent with this disease.

False-positive results may occur in patients with trichosporonosis or infection with *Capnocytophaga* species.

Clinical Reference

1. Binnicker MJ, Jespersen DJ, Bestrom JE, Rollins LO. Comparison of four assays for the detection of cryptococcal antigen. Clin Vaccine Immunol. 2012;19(12):1988-1990
2. Howell SA, Hazen KC, Brandt ME. *Candida, cryptococcus,* and other yeast of medical importance. In: Manual of Clinical Microbiology. 11th ed. ASM Press; 2015:1984-2014
3. Chang CC, Harrison TS, Bicanic TA, et al. Global guideline for the diagnosis and management of cryptococcosis: an initiative of the ECMM and ISHAM in cooperation with the ASM. Lancet Infect Dis. 2024;24(8):e495-e512. doi:10.1016/S1473-3099(23)00731-4
4. Perfect JR, Bicanic T. Cryptococcosis diagnosis and treatment: What do we know now. Fungal Genet Biol. 2015;78:49-54. doi:10.1016/j.fgb.2014.10.003

Performance

Method Description

The CrAg (*Cryptococcus* antigen) lateral flow assay is a sandwich immunochromatographic assay. Specimens and diluent are added to a test tube and the lateral flow device is added. The test uses specimen wicking to capture gold-conjugated, anti-cryptococcal antigen monoclonal antibodies and gold-conjugated control antibodies deposited on the test membrane. If cryptococcal antigen is present in the specimen, it binds to the gold-conjugated anti-cryptococcal antigen antibodies. This complex wicks up the membrane and interacts with the test line, which has immobilized anti-cryptococcal antigen monoclonal antibodies. The antigen-antibody complex forms a sandwich at the test line causing a visible line to form. A valid test shows a visible line at the control line. Positive test results create 2 lines (control and specimen), while negative results form only the control line.(Package insert: CrAg Lateral Flow Assay. IMMY; Rev 06/27/2019)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

Same day/1 to 2 days

Specimen Retention Time

7 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

This test has been modified from the manufacturer's instructions. Its performance characteristics were 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

87899-*Cryptococcus* Ag Screen, LFA, PF
87899-*Cryptococcus* Ag Titer, LFA, PF (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PLFA	Cryptococcus Ag Screen, LFA, PF	29533-7

Result ID	Test Result Name	Result LOINC® Value
42396	Cryptococcus Ag Screen, LFA, PF	29533-7