Overview

Useful For
Diagnosis of coccidioidomycosis in serum specimens

Method Name
Complement Fixation (CF) Using Coccidioidin: IgG
Immunodiffusion: IgG and IgM

NY State Available
Yes

Specimen

Specimen Type
Serum

Advisory Information
This test is a confirmatory assay for positive screening tests (ie, EIA).

The recommended test to evaluate for possible Coccidioides infection is COXIS / Coccidioides Antibody Screen with Reflex, Serum.

Specimen Required

Container/Tube:
Preferred: Serum gel
Acceptable: Red top

Specimen Volume: 1.8 mL

Forms

If not ordering electronically, complete, print, and send a Microbiology Test Request (T244) with the specimen.

Specimen Minimum Volume
1.2 mL

Reject Due To

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>Reject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross lipemia</td>
<td>Reject</td>
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Specimen Stability Information

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

Clinical Information

Coccidioidomycosis (valley fever, San Joaquin Valley fever) is a fungal infection found in the southwestern US, Central America, and South America. It is acquired by inhalation of arthroconidia of *Coccidioides immitis/posadasii*. Usually, it is a mild, self-limiting pulmonary infection. Less commonly, chronic pneumonia may occur, progressing to fibronodular, cavitary disease. A rash often develops within a day or 2, followed by erythema nodosum or multiforme and accompanying arthralgias. About 2 weeks after exposure, symptomatic patients develop fever, cough, malaise, and anorexia; chest pain is often severe. Coccidioidomycosis may disseminate beyond the lungs to involve multiple organs, including the meninges.

IgG antibody is detected by the complement-fixation tests. Precipitating antibodies (IgM and IgG) are detected by immunodiffusion. They are rarely found in cerebrospinal fluid; however, their presence is associated with meningitis. Chronic coccidioidal pulmonary cavities are often accompanied by IgG and IgM precipitating antibodies.

Serologic testing for coccidioidomycosis should be considered when patients exhibit symptoms of pulmonary or meningeal infection and have lived or traveled in areas where *C immitis/possadasii* is endemic. Any history of exposure to the organism or travel cannot be overemphasized when a diagnosis of coccidioidomycosis is being considered.

Reference Values

COMPLEMENT FIXATION

Negative

If positive, results are titered.

IMMUNODIFFUSION

Negative

Results are reported as positive, negative, or equivocal.

Interpretation

Complement Fixation:

Titers of 1:2 or higher may suggest active disease; however, titers may persist for months after infection has resolved. Increasing complement fixation (CF) titers in serial specimens are considered diagnostic of active disease.

Immunodiffusion:

The presence of IgM antibody may be detectable within 2 weeks after the onset of symptoms; however, antibody may be detected longer than 6 months after infection.

The presence of IgG antibody parallels the CF antibody and may suggest an active or a recent asymptomatic infection with *Coccidioides immitis/posadasii*; however, antibodies may persist after the infection has resolved.

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An equivocal result (a band of nonidentity) cannot be interpreted as significant for a specific diagnosis. However, this may be an indication that a patient should be followed serologically.

Over 90% of primary symptomatic cases will be detected by combined immunodiffusion (ID) and CF testing.

**Cautions**

Antibodies (both IgM and IgG) may be present after the infection has resolved.

**Clinical Reference**


**Performance**

**Method Description**

**Complement Fixation:**

Antibody to coccidioidin in the patient's serum is quantitated by complement fixation (CF). The CF test is a 2-stage test based on the ability of antigen-antibody complexes to bind complement (C'). In the first stage, antigen and antibody combine and fix C'. The second stage is an indicator system in which sheep erythrocytes, sensitized by rabbit anti-sheep red cell antibody (hemolysin), are used to demonstrate the presence of unfixed C'. If the patient's serum contains C'-fixing antibody that reacts with the specific antigen (a positive reaction), C' will be fixed and excess C' will not be available to react with and lyse the sensitized sheep erythrocytes. If no antigen-antibody reaction occurs (a negative reaction), C' will be available to lyse the sheep erythrocytes. The CF titer is determined by the greatest dilution of serum (antibody) in which the sheep erythrocytes are not lysed.(Kaufman L, Kovacs JA, Reiss E: Immunomycology. In: Rose NR, de Macario ED, Folds JD, eds. Manual of Clinical Laboratory Immunology. 5th ed. ASM Press; 1997: 591-592; Pappagianis D, Zimmer BL: Serology of coccidioidomycosis. Clin Microbiol Rev. 1990;3:247-268; Ramanan P, Wengenack NL, Theel ES: Laboratory diagnosis for fungal infections. A review of current and future diagnostic assays. Clin Chest Med. 2017 Sep;38(3):535-554)

**Immunodiffusion:**


**PDF Report**

No

**Day(s) and Time(s) Test Performed**

Monday; 6 a.m.
Test Definition: SCOC
Coccidioides Ab, CompF/ImmDiff, S

Tuesday through Friday; 9:30 a.m.

**Analytic Time**
4 days

**Maximum Laboratory Time**
7 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 has been cleared, approved or is exempt by the U.S. 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**
86635 x 3

**LOINC® Information**

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