TEST

Coccidioides precipitin test

A blood test that looks for early antibodies to the fungus causing Valley fever.

WHAT IT MEASURES
IgM antibodies that bind Coccidioides fungal proteins

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually under 10 minutes for a blood draw

RESULTS IN
Usually several days; timing varies by laboratory

USED FOR
Supporting diagnosis of coccidioidomycosis

MAIN LIMITATION
Antibodies may be absent early or with weakened immunity

Overview

The Coccidioides precipitin test is a blood test that helps diagnose coccidioidomycosis, also called Valley fever. The infection is caused by breathing in spores from the Coccidioides fungus, which lives in soil in parts of the southwestern United States, Mexico, and Central and South America.

The test looks for immunoglobulin M, or IgM, antibodies. These immune proteins often appear during the earlier part of an infection.

"Precipitin" refers to the laboratory reaction used to detect the antibodies. It does not mean anything is forming or settling inside your body. The test may be called tube precipitin, TP, immunodiffusion tube precipitin, or IDTP.

Laboratories may combine it with other Coccidioides antibody tests, such as an enzyme immunoassay or complement fixation test.

Why the test is ordered

Your healthcare professional may order this test if symptoms and possible exposure suggest Valley fever. Symptoms can include cough, fever, chest discomfort, tiredness, headache, joint pain, or a rash. Because these symptoms have many possible causes, the result is considered with your medical history and other tests.

Testing may be useful if you recently lived in or visited an area where Coccidioides occurs. Construction, farming, military training, outdoor work, and dust storms can increase soil and dust exposure, although many people do not recall a specific event.

The test may also help evaluate pneumonia that is not improving as expected or possible infection outside the lungs, including the skin, bones, joints, or tissues surrounding the brain and spinal cord.

Who should have the test

The test is generally considered for people with compatible symptoms and possible geographic or environmental exposure. It is not usually used to screen everyone who has visited an affected region.

Testing may be particularly relevant when symptoms persist or there is a higher risk of complicated illness. This includes some people with weakened immune systems, although they may produce fewer detectable antibodies.

A healthcare professional may order several tests rather than relying on the precipitin test alone. The approach depends on symptoms, exposure history, timing, immune health, and imaging findings.

How to prepare

You do not need to fast. You can usually eat, drink water, and take your regular medicines before the blood draw.

Tell the healthcare professional about medicines that suppress your immune system, including chemotherapy, anti-rejection medicines, and some treatments for inflammatory conditions. These can reduce antibody production and make a negative result less reliable.

Also report a recent blood transfusion or intravenous immunoglobulin treatment, called IVIG. Transferred antibodies can sometimes complicate interpretation.

Do not stop prescribed medicines unless the prescribing professional tells you to do so.

What happens during the test

A healthcare worker cleans an area of skin, usually inside your elbow or on the back of your hand. A needle is placed into a vein, and a small amount of blood is collected in a tube.

The draw normally takes less than 10 minutes. The sample goes to a laboratory, where the liquid portion of the blood is tested for antibodies that react with Coccidioides proteins.

In special situations, antibody testing may be performed on cerebrospinal fluid, which surrounds the brain and spinal cord. Collecting this fluid requires a lumbar puncture and is not part of a routine blood test.

Understanding your results

Results are commonly reported as positive, negative, or indeterminate rather than with a universal numerical range.

A positive result means IgM antibodies reacting with Coccidioides were detected. This can support a recent or active infection when it fits your symptoms and exposure history. It does not show where the infection is located or how severe it is.

A negative result means these antibodies were not detected, but it does not always rule out Valley fever. Testing may have occurred before antibodies developed, or a weakened immune system may not produce enough antibodies to detect.

An indeterminate or equivocal result is not clearly positive or negative. Another blood sample or a different antibody test may be recommended.

Your report may also include Coccidioides IgG or complement fixation results. IgG generally develops later than IgM. Complement fixation may be reported as a titer, which measures how much antibody remains detectable after the sample is diluted. A titer must be interpreted with your other clinical information.

What affects the results

Factors that can produce a negative or confusing result include:

Pregnancy can affect immune responses and the importance of a suspected infection, but it does not automatically make the test positive or negative. Kidney function, ordinary exercise, coffee, and time of day do not usually have a meaningful direct effect.

A damaged, contaminated, or poorly stored sample may require another blood draw.

- Testing too early: Detectable antibodies may not have developed.
- Reduced immune function: Illnesses or medicines that suppress immunity can weaken the antibody response.
- Early antifungal treatment: Treatment may sometimes reduce antibody production.
- Past infection: Antibodies can remain after recovery, so a positive result does not always explain current symptoms.
- Recent transfusion or IVIG: Transferred antibodies can occasionally affect testing.
- Testing method: Immunodiffusion, enzyme immunoassay, and complement fixation detect different antibodies and may disagree.

Accuracy and limitations

No single accuracy figure applies to every Coccidioides precipitin test. Performance varies with the method, stage of illness, immune response, and location of the infection.

The test can miss an infection before antibodies develop or when immune function is reduced. Repeat testing may detect antibodies that appear later.

Immunodiffusion precipitin testing is generally more specific than a screening enzyme immunoassay, meaning a positive result is less likely to be a false positive. However, immunodiffusion may miss low antibody levels detected by a more sensitive screening test.

False positives remain possible because of past infection, nonspecific antibody reactions, or disagreement between methods. An isolated positive IgM result from an enzyme immunoassay may be checked with immunodiffusion.

If antibody testing is negative but suspicion remains, options include repeat serology, respiratory or tissue testing, fungal culture, antigen testing, or molecular testing. The best choice depends on the suspected infection site and severity.

Risks and complications

A blood draw may cause brief discomfort, minor bleeding, or a small bruise. Some people feel lightheaded or faint, but serious complications are uncommon.

What happens next

A positive result is reviewed with your symptoms, exposure history, examination, and any chest imaging. Further antibody testing may help confirm it. A positive test does not automatically mean treatment is needed; that decision depends on your overall health and illness.

After a negative result, follow-up may include monitoring symptoms, repeating the test later, or using another diagnostic method. Do not stop prescribed treatment based only on an antibody result.

Contact your healthcare professional promptly if symptoms worsen, especially if you develop a severe or persistent headache, neck stiffness, new weakness, increasing chest pain, or shortness of breath.

Seek emergency care for severe difficulty breathing, blue or gray lips, fainting, new confusion, or inability to stay awake. These symptoms require urgent assessment regardless of the test result.

Common questions

Can I drink coffee before the test?

Yes. Fasting is not required, and coffee does not usually affect the result.

Does the time of day matter?

No. Morning or afternoon testing is acceptable.

Can I exercise beforehand?

Yes. Ordinary exercise does not usually affect the result. If it makes you dehydrated or lightheaded, drink water and recover before the blood draw.

Should I stop my medicines?

No, unless the prescribing professional specifically tells you to. Report medicines that suppress your immune system.

Why might I need the test again?

An early test can be negative before detectable antibodies develop. A later sample may provide a clearer result.

Does a positive test mean I can spread Valley fever to others?

Usually not. Valley fever is generally acquired from environmental spores and does not normally spread from person to person.

Sources

- Centers for Disease Control and Prevention. Testing Algorithm for Coccidioidomycosis
- Centers for Disease Control and Prevention. Clinical Overview of Valley Fever
- Infectious Diseases Society of America. 2016 Clinical Practice Guideline for the Treatment of Coccidioidomycosis
- ARUP Consult. Coccidioidomycosis
- McHardy IH, Barker B, Thompson GR III. Review of Clinical and Laboratory Diagnostics for Coccidioidomycosis. Journal of Clinical Microbiology. 2023;61(5):e01581-22