TEST

CMV blood test

A CMV blood test looks for antibodies or viral genetic material linked to cytomegalovirus infection.

WHAT IT MEASURES
CMV antibodies or viral genetic material

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Less than five minutes for a standard blood draw

RESULTS IN
One to several days, varying by laboratory

USED FOR
Assessing past infection, recent infection, or active viral replication

MAIN LIMITATION
IgM alone cannot reliably show when infection occurred

Overview

Cytomegalovirus, or CMV, is a common herpesvirus. After infection, it remains inactive in the body and may reactivate later. Most healthy people have mild symptoms or none.

"CMV blood test" can refer to several tests:

The appropriate test depends on why testing is needed. Antibody tests assess previous or possibly recent infection. PCR is more often used for people with weakened immune systems or for monitoring after a transplant.

- CMV IgG looks for antibodies that usually indicate past infection
- CMV IgM looks for antibodies that may appear around a recent infection
- IgG avidity measures how strongly IgG antibodies bind to CMV
- CMV PCR detects and may measure the virus's genetic material in blood

Why the test is ordered

A CMV blood test may be ordered when an illness resembles mononucleosis but tests for Epstein-Barr virus are negative. Symptoms can include fever, fatigue, swollen glands, or abnormal liver blood tests.

During pregnancy, antibody testing may be considered after symptoms, a known exposure, or a concerning ultrasound finding. A pregnant person's blood result cannot by itself show whether the fetus has CMV.

CMV PCR may be used to detect active viral replication in someone with a weakened immune system or to monitor people after an organ or stem-cell transplant. Repeated results can show whether the amount of virus is rising or falling.

Who should have the test

Testing is most useful when it addresses a specific clinical question. It may be recommended for people who:

Routine testing is not usually needed after ordinary exposure in a healthy person. Routine antibody screening during pregnancy is also not recommended in all settings.

For a newborn, blood antibody testing is not preferred for confirming congenital CMV, meaning infection acquired before birth. Testing saliva or urine for the virus within the first 21 days of life is generally more useful.

- Have an illness that could be caused by CMV
- Are pregnant and need assessment for possible recent infection
- Have a weakened immune system and symptoms that could relate to CMV
- Are being assessed or monitored before or after a transplant

How to prepare

You do not need to fast and can usually eat and drink normally.

Take your usual medicines unless told otherwise. Tell the healthcare professional about immune-suppressing medicines, antiviral treatment, recent blood transfusions, or immunoglobulin treatment because these can affect interpretation.

When previous CMV PCR results are being compared, using the same laboratory and sample type can make trends easier to interpret.

What happens during the test

A healthcare professional places a band around your upper arm, cleans the skin, and inserts a needle into a vein, usually near your elbow. Blood is collected into one or more tubes.

You may feel a brief scratch or sting. The needle is removed, and pressure is applied to limit bleeding and bruising.

The laboratory performs the requested antibody or PCR test. If an antibody result is unclear, another sample may be needed later to look for changes.

Understanding your results

Results depend on the test performed, why it was ordered, and the laboratory's reporting system.

A negative IgG result usually means no CMV antibodies were detected. You may not have had CMV, but the result can also occur before antibodies develop or when the immune system cannot produce a typical response.

A positive IgG result usually means you had CMV at some point. IgG often remains detectable for life. One positive result does not show when infection occurred or whether CMV is causing current illness.

A positive IgM result may occur with a recent first infection, reactivation, or an unrelated antibody reaction. IgM can remain positive for months and should not be used alone to date an infection.

IgG avidity may help assess timing, particularly during pregnancy. Low avidity can support a more recent first infection. High avidity early in pregnancy makes a very recent first infection less likely. Interpretation depends on sample timing and the laboratory method.

A positive PCR means CMV genetic material was detected. A quantitative result may be called a viral load. Detection does not always mean CMV is causing organ disease, and trends across repeated tests are often more useful than one result.

What affects the results

Antibody tests may be negative early in infection before the immune system has produced detectable antibodies. A later sample may clarify the result.

A weakened immune system can reduce or delay antibody production, making antibody tests

less reliable. Recent blood transfusions or immunoglobulin treatment may transfer donor antibodies that do not reflect your own immune response.

CMV IgM may react with antibodies associated with Epstein-Barr virus or some autoimmune conditions, producing a misleading positive result.

PCR results can vary with the blood sample type, collection timing, handling, and laboratory method. Whole blood and plasma results are not directly interchangeable, and laboratories may use different units.

Antiviral treatment can reduce the amount of CMV detected. Blood PCR can also be low or negative when infection is mainly confined to one organ.

Accuracy and limitations

Accuracy varies by test, timing, laboratory method, and the population being tested.

IgG is useful for showing previous exposure after antibodies develop, but it can miss very early infection and may be less reliable when immune function is severely weakened.

IgM produces more misleading positive results than IgG. It may persist after infection, appear during reactivation, or react with unrelated antibodies. Repeat samples, IgG avidity, or confirmatory testing may be more informative.

PCR can detect small amounts of viral genetic material, but a positive result does not prove tissue damage. A negative blood PCR does not completely exclude infection limited to an organ; testing fluid or tissue from the affected area may be needed.

For suspected congenital CMV, saliva or urine PCR collected within 21 days after birth is preferred. A negative dried blood spot can miss infection, while testing after 21 days may not distinguish congenital infection from infection acquired after birth.

Risks and complications

The main risks are a small bruise, brief soreness, or feeling faint. Serious complications are uncommon.

What happens next

A result showing past infection may require no further action if you are otherwise well. An unclear antibody pattern may lead to repeat IgG and IgM testing, an avidity test, or specialist

review.

During pregnancy, an obstetric or maternal-fetal medicine team may review the results. Further assessment can include ultrasound and, in selected circumstances, amniotic fluid testing. A maternal blood result alone does not diagnose fetal infection.

After a transplant or during significant immune suppression, PCR results are considered alongside symptoms, examination findings, and other tests. Do not change antiviral or immune-suppressing medicines based only on a result unless your specialist team advises you to.

Contact your healthcare team promptly if you have a weakened immune system and develop fever, shortness of breath, new vision changes, confusion, or worsening illness. Seek emergency care for severe breathing difficulty, collapse, or marked confusion, regardless of the CMV result.

Common questions

Can I drink coffee before a CMV blood test?

Yes. Fasting is not normally required, so coffee is usually fine unless another test requires fasting.

Does the time of day matter?

Usually not. For repeated PCR monitoring, follow the schedule set by your transplant or specialist team.

Can I exercise beforehand?

Yes. Ordinary exercise does not usually affect CMV antibody or PCR results. Avoid strenuous activity if you feel unwell and mention your symptoms when the sample is taken.

How long does CMV stay positive in blood?

CMV IgG often remains positive for life. IgM may remain detectable for several months. PCR levels can rise or fall as viral replication changes.

Can the blood test tell exactly when I caught CMV?

No. Changes between antibody samples and IgG avidity may help estimate whether infection was recent, but they cannot provide an exact date.

Can a blood test diagnose congenital CMV in a newborn?

Blood antibody tests are not preferred. Saliva or urine PCR collected within the first 21 days after birth is generally used to confirm congenital infection.

Sources

- Laboratory Testing for CMV and Congenital CMV , US Centers for Disease Control and Prevention
- Clinical Overview of CMV and Congenital CMV , US Centers for Disease Control and Prevention
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- Society for Maternal-Fetal Medicine Consult Series #39: Diagnosis and antenatal management of congenital cytomegalovirus infection , American Journal of Obstetrics and Gynecology , 2017
- The Third International Consensus Guidelines on the Management of Cytomegalovirus in Solid-Organ Transplantation , Kotton and colleagues, Transplantation , 2018