

Test name

Toxoplasma gondii Antibodies, IgG, IgM

Alternative name

Toxoplasma gondii, T. Gondii

What this test is used for?

Toxoplasmosis is an infection caused by the parasite Toxoplasma gondii.

T. gondii is widely distributed. The definitive hosts for T. gondii are wild and domestic cats. When cats become infected by eating infected birds, rodents, or contaminated raw meat, T. gondii is passed in the cat's feces in a microscopic oocyst form.

Oocysts transform into tachyzoites shortly after ingestion. In the human host, the parasites form tissue cysts bradyzoites, most commonly in skeletal muscle, myocardium, brain, and eyes; these cysts may remain throughout the life of the host, unless the immune system becomes compromised.

Humans can become infected by any of several routes:

- ✓ Eating undercooked, contaminated meat
- ✓ Drinking unpasteurized milk
- ✓ Consuming food or water contaminated with cat feces
- ✓ Handling contaminated cat litter
- ✓ Blood transfusion or organ transplantation.
- ✓ Transplacentally from mother to fetus.

In most healthy humans, the infection either causes no symptoms or results in a mild flu-like illness (e.g., tender lymph nodes, muscle aches, etc.) that last for weeks to months and then go away. However, the parasite remains in the person's body in an inactive state. It can become reactivated if the person becomes immunosuppressed.

When a woman becomes infected during pregnancy, there is a 30-40% chance that the infection will be passed to her unborn child. When infection occurs early in the pregnancy, it can cause miscarriages or stillbirths or can lead to severe complications in the newborn, including mental retardation, seizures, blindness, and an enlarged liver or spleen. Many infected babies, especially those exposed later in the pregnancy, will appear normal at birth but may develop symptoms, such as severe eye infections, hearing loss, and mental disorders, years later.

An initial or re-activated Toxoplasma gondii infection can cause significant symptoms and complications in people with weakened immune systems, such as those who have HIV/AIDS, are undergoing chemotherapy, have had a recent organ transplant, or are on immunosuppressant medications. It can affect the nervous system and eyes, causing headaches, seizures, confusion, fever, encephalitis, loss of coordination, and blurred vision.

Why Get Tested?

To detect a Toxoplasma gondii infection in a pregnant woman, unborn baby, or in a person with a weakened immune system (immunocompromised) who has flu-like symptoms and for anyone who has symptoms or complications that suggest toxoplasmosis: swollen lymph nodes, fever, night sweats, weakness, fatigue, headache, body aches, sometimes a sore throat.

How is the test performed?

A blood sample is taken from a vein.

How to prepare for the test?

No specific preparation is necessary for the test.

What does the test result mean?

The human immune system responds to *T. gondii* by producing two classes of antibodies to the parasite: **IgM and IgG**. IgM antibodies are the first to be produced by the body in response to a *Toxoplasma* infection. They are present in most individuals within a week or two after the initial exposure. IgM antibody production rises for a short time period and then it declines (IgM may be present after 18 months of initial infection). Sometimes months after the initial infection, the level (titer) of IgM antibody falls below a detectable level in most people. Additional IgM may be produced when dormant *T. gondii* is reactivated and/or when a person has a chronic infection.

IgG antibodies are produced by the body several weeks after the initial infection and provide long-term protection. Levels of IgG rise during the active infection, and then stabilize. After infected with *T. gondii*, some measurable amount of IgG antibody can be found for the rest of life, which provides immune protection.

Positive IgM – indicates acute infection

Positive IgG – past infection

Negative IgG and IgM – no evidence of infection

How to prevent toxoplasmosis infection?

Actions that can be taken include:

- Wear gloves and change the litter box every day to prevent any eggs from becoming infective.
- If possible, keep your cat indoors to prevent it from hunting or possibly eating contaminated raw meat.
- Wear gloves when gardening.
- Don't eat raw or undercooked meat.
- Wash cutting boards, hands, and any utensils used to prepare raw meat in hot soapy water and avoid cross-contamination.
- Don't drink unpasteurized milk.
- Wash and/or peel fruits and vegetables.