

Thyroglobulin (Tg)

MDL Test Number: 623

Methodology: Immunoassay

CPT Codes: 84432 x 1



Specimen Collection Platform:

Serum in Serum Separator Tube (SST)

Turnaround Time:

24 - 72 hours

Stability:

Room temperature

Test Additions*:

30 days to add tests

Specimen Collection:



1. Immediately after blood collection, invert the tube(s) gently 5 times to ensure mixing of clot activator.



2. Allow the tube to rest upright for at least 30 minutes after collection to ensure proper clotting.



3. Centrifuge for at least 15 minutes at 2200-2500 RPM within one hour of collection.



4. Do not remove the stopper or pour off serum.



What is Thyroglobulin?

Thyroglobulin, often shortened to Tg, is a very large protein made only by the thyroid, the small gland at the front of the neck. The gland stores it, attaches iodine to it, and then cuts thyroid hormone out of it, so thyroglobulin is best thought of as the raw material from

which thyroid hormone is built. A small amount leaks into the bloodstream, and that is what this test measures. What makes it useful is that working thyroid tissue appears to be its only source: if there is no thyroid tissue in the body, there should be almost no thyroglobulin in the blood.

That is why this is a monitoring test rather than a diagnostic one. It is not used to screen for thyroid cancer, and it cannot say whether a lump in the thyroid is cancer. Its main use comes after the thyroid has been removed, when the level should fall close to zero, and a rise measured against the patient's own earlier results is an early signal that thyroid tissue is present again. Thyroglobulin also rises whenever the gland is inflamed or damaged and spills its contents, and it falls when the gland is switched off. Levels run somewhat higher in the third trimester of pregnancy.

Why test for Thyroglobulin?

A healthcare provider may order a thyroglobulin test to judge how much working thyroid tissue is present. Common reasons include:

- **Following a patient after surgery for thyroid cancer.** Once the gland has been removed, the level should fall close to zero, so a rise measured against that patient's own baseline is an early signal. Thyroid cancer is about three times more common in women than in men, and is diagnosed most often during the reproductive years
- **Judging whether treatment has removed or destroyed all the thyroid tissue** it was meant to, alongside imaging and other tests
- **Working out why a thyroid is overactive** when thyroid hormone taken from outside the body is a possibility. When the gland itself is overproducing, thyroglobulin is high; when the hormone is coming from outside, the gland switches off, and thyroglobulin falls
- **Investigating subacute thyroiditis**, a painful inflammation of the thyroid that often follows a viral illness and releases stored thyroglobulin into the blood. It is several times more common in women than in men
- **Assessing thyroid inflammation in the months after delivery**, when the thyroid can swing first overactive and then underactive
- **Looking for evidence that the immune system is attacking the thyroid**, where ongoing damage to the gland releases thyroglobulin



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Special Instructions:

- **Timing after surgery, radioiodine, or biopsy:** Allow at least six weeks after thyroid surgery or radioiodine treatment before measuring thyroglobulin. Draw the sample before a radioiodine scan rather than after it, because a scan can release thyroglobulin from even a very small amount of tissue. For the same reason, do not draw soon after a needle biopsy of the thyroid.
- **Thyroglobulin antibodies:** Some patients make antibodies against thyroglobulin itself, and those antibodies change what a thyroglobulin result means. The manufacturer directs that every patient be checked for them using a sensitive test, and the ordering provider decides whether to request that test alongside this one.
- **Biotin supplements:** Biotin, sold on its own as vitamin B7 and included in many hair, skin, and nail products, interferes with this test at far smaller amounts than with most thyroid tests. The manufacturer's stated threshold is 5 nanograms per milliliter, and an ordinary over-the-counter supplement can push blood levels many times higher than that. Biotin makes the result read falsely low. No stop-taking interval has been established, so patients should tell the ordering provider about any biotin they take and follow their advice on timing.
- **Reduced kidney function:** Biotin leaves the body more slowly when the kidneys are not working well. The manufacturer directs that a thyroglobulin result not be reported for a patient with reduced kidney function unless it is confirmed that the patient is not taking biotin, so kidney problems are worth mentioning alongside supplements.
- **Comparing results over time:** Thyroglobulin methods differ from one another, and the same sample can give different numbers on different systems, so a change between two laboratories can look like a change in the patient. Measurements made over time should use the same method at the same laboratory, and the laboratory should report which method it used.

Limitations:

Every laboratory test has limits. For thyroglobulin, the main ones are:

- The lowest value this test can measure dependably is 0.9 ng/mL. Results below that point are not reliable enough to compare from one draw to the next, and levels after complete removal of the thyroid often sit at or below it.
- Antibodies against thyroglobulin can make the result read falsely low, sometimes low enough that none is detected at all. A low result from a patient who carries these antibodies cannot be taken at face value, and checking how well added thyroglobulin is recovered is not a reliable way to rule the problem out.
- A detectable result after thyroid surgery does not by itself mean disease has come back. Normal thyroid tissue left behind produces thyroglobulin too, and levels can stay raised for several months after treatment that has, in fact, worked.
- This test measures only intact thyroglobulin that the antibodies in the kit can recognize, so other forms may be missed. In patients taking thyroid hormone to switch the gland off, thyroglobulin may not be reliably detected at all.
- A small number of patients carry natural antibodies in their blood — often people who work closely with animals or who have received certain antibody-based treatments — that can interfere with the test and produce an unexpected result.
- A thyroglobulin result is one piece of a larger picture. It is meant to be read together with the patient's symptoms, medical history, and other test results — never on its own.

Reference Range(s):

Thyroglobulin is measured in nanograms per milliliter (ng/mL). The manufacturer publishes a single upper value rather than a range, and describes results above it as elevated and needing further assessment. That value applies to a person whose thyroid is still in place. It does not apply after the thyroid has been removed, where the level should fall close to zero, and the comparison that matters is against the patient's own earlier results rather than against a population range. The value below is specific to serum, which is the sample type this laboratory reports:

- **Adults (serum, thyroid intact): 55 ng/mL or less**

A result outside these ranges is not automatically a problem, and a result inside them does not rule one out. Only the ordering provider can interpret what a given number means for a given patient. Patients should always go by the reference range printed on their own laboratory report.

Analyte	Disorder	Expected Value*
Tg	Graves' disease or hyperthyroidism	↑
Tg	Postpartum thyroiditis	↑
Tg	Subacute (painful) thyroiditis	↑
Tg	Exogenous thyrotoxicosis	↓↓
Tg	Thyroid autoimmunity	↑

*↓↓ – Markedly Decreased, ↑ – Increased.

What are some references that discuss the medical necessity of testing Thyroglobulin?

1. Ringel MD, et al. 2025 American Thyroid Association management guidelines for adult patients with differentiated thyroid cancer. *Thyroid*, **35**, 841–985 (2025).
2. Spencer CA. Clinical utility of thyroglobulin antibody (TgAb) measurements for patients with differentiated thyroid cancers (DTC). *J Clin Endocrinol Metab*, **96**, 3615–3627 (2011).
3. Ross DS, et al. 2016 American Thyroid Association guidelines for diagnosis and management of hyperthyroidism and other causes of thyrotoxicosis. *Thyroid*, **26**, 1343–1421 (2016).
4. Korevaar T, et al. American Thyroid Association 2026 guidelines for thyroid disease in preconception, pregnancy, and postpartum. *Thyroid*, **36**, 481–544 (2026).
5. Caturegli P, et al. Hashimoto thyroiditis: clinical and diagnostic criteria. *Autoimmun Rev*, **13**, 391–397 (2014).
6. Chaker L, et al. Hypothyroidism. *Nat Rev Dis Primers*, **8**, 30 (2022).



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