

Thyroid Peroxidase Antibody (Anti-TPO)

MDL Test Number: 638

Methodology: Immunoassay

CPT Codes: 86376 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 Thyroid Peroxidase Antibody (Anti-TPO)?

Thyroid peroxidase is an enzyme inside the thyroid, the small gland at the front of the neck. Its job is to attach iodine to a large protein called thyroglobulin, and that is the step that builds thyroid hormone. In some people, the immune system treats

this enzyme as though it were foreign and makes antibodies against it. Those antibodies are what this test measures. Their presence is the clearest blood marker that a thyroid problem is autoimmune, meaning the immune system is attacking the gland itself, rather than caused by a nodule, a medication, or a passing illness.

These antibodies are not a hormone. They do not rise and fall through the day or across the menstrual cycle, so the sample can be drawn at any time, and no fasting is needed. They often appear years before the thyroid begins to fail, and once present, they usually stay. Autoimmune thyroid disease is several times more common in women than in men, and antibodies are found more often in women at every adult age. The one period when levels do move is pregnancy, when they drift downward, and the months after delivery, when they rise again.

Why test for Thyroid Peroxidase Antibody (Anti-TPO)?

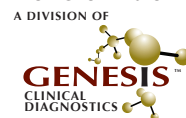
A healthcare provider may order a thyroid peroxidase antibody test to find out whether a thyroid problem is autoimmune. Common reasons include:

- **Explaining a thyroid-stimulating hormone (TSH) result that came back outside the expected range.** Autoimmune thyroiditis, usually called Hashimoto disease, is by far the most common cause of an underactive thyroid in this country
- **Judging what a mildly abnormal TSH means.** When antibodies are present, a borderline thyroid is more likely to go on to become clearly underactive, so the result helps decide how closely to follow it
- **Sorting out symptoms that overlap heavily with gynecological ones.** Irregular, absent, or heavy periods, difficulty conceiving, recurrent pregnancy loss, fatigue, and weight change come from thyroid disease as readily as from a problem of the ovaries or uterus
- **Assessing thyroid status before conception, during pregnancy, or as part of a fertility work-up.** The demand placed on the thyroid rises sharply in early pregnancy, and a gland already under autoimmune attack is less able to meet it
- **Looking ahead to the months after delivery,** when the thyroid can swing first overactive and then underactive. This is called postpartum thyroiditis, and it happens far more often in women who carry these antibodies
- **Separating an autoimmune cause of an overactive thyroid,** such as Graves' disease, from a nodule or goiter that has begun producing hormone on its own



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Special Instructions:

- **Pregnancy and the months after delivery:** Antibody levels fall during pregnancy and rise again afterward, so a low result late in pregnancy does not rule out autoimmune thyroid disease. Patients should tell the ordering provider whether they are pregnant or have delivered within the past year, so the result is read against the right expectation.
- **Biotin supplements:** Biotin, sold on its own as vitamin B7 and included in many hair, skin, and nail products, interferes with this test above the manufacturer's stated threshold of 1500 nanograms per milliliter. 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.
- **Repeat testing:** These antibodies change slowly and are largely a yes-or-no finding, so once a positive result is on record, there is usually little to gain from measuring them again. What is followed over time is thyroid function itself, through TSH and thyroxine.
- **Comparing results over time:** Antibody methods differ from one another more than hormone methods do, and the same sample can give very different numbers on different systems. When results are tracked over time, use the same test at the same laboratory so the comparison is meaningful.

Limitations:

Every laboratory test has limits. For thyroid peroxidase antibodies, the main ones are:

- This test reports values up to 1,000 IU/mL. A result above that point is reported as greater than 1,000 rather than as an exact number. Levels far above the range are common in Hashimoto disease, and little is lost: how far a result sits above the cutoff does not indicate how badly the thyroid is working.
- A raised result does not by itself mean thyroid disease. Low-level antibodies are found in some people with no thyroid problem at all, and in people with other inflammatory conditions such as rheumatic disease. In the manufacturer's own studies of healthy adults, between 8 and 21 percent had results above the cutoff.
- A result inside the expected range does not rule out thyroid disease. Some autoimmune thyroid diseases are antibody-negative, and thyroid problems from other causes are not detected by this test at all.
- Each patient makes slightly different antibodies, and they differ from the ones used to set the test up. Samples can therefore behave differently from one another, and a diluted sample may not give a result that scales the way it should.
- 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 thyroid peroxidase antibody 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):

Thyroid peroxidase antibodies are measured in international units per milliliter (IU/mL). An antibody test is not built like a hormone test. It has no lower limit, because carrying no antibody at all is the healthy state, so the manufacturer publishes a single upper value rather than a range and describes results at or above it as elevated. The value below is specific to serum, which is the sample type this laboratory reports:

- **Adults (serum): less than 35 IU/mL**

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*
Anti-TPO	Underactive thyroid (Hashimoto)	↑↑
Anti-TPO	Hyperthyroidism (Graves' disease)	↑
Anti-TPO	Postpartum thyroiditis	↑
Anti-TPO	Subclinical hypothyroidism	↑
Anti-TPO	Toxic nodular goiter	N

*N – Normal Range, ↑ – Increased, ↑↑ – Markedly Increased.

What are some references that discuss the medical necessity of testing Thyroid Peroxidase Antibody (Anti-TPO)

1. Caturegli P, et al. Hashimoto thyroiditis: clinical and diagnostic criteria. *Autoimmun Rev*, **13**, 391–397 (2014).
2. Chaker L, et al. Hypothyroidism. *Nat Rev Dis Primers*, **8**, 30 (2022).
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. Hollowell JG, et al. Serum TSH, T4, and thyroid antibodies in the United States population (1988 to 1994): National Health and Nutrition Examination Survey (NHANES III). *J Clin Endocrinol Metab*, **87**, 489–499 (2002).
6. Krassas GE, et al. Thyroid function and human reproductive health. *Endocr Rev*, **31**, 702–755 (2010).



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