

Thyroglobulin Antibodies (Anti-Tg)

WHAT ARE THYROGLOBULIN ANTIBODIES?

Thyroglobulin is a protein produced from cells in the thyroid gland, an endocrine gland in the lower front of the neck. Thyroglobulin antibodies (anti-Tg) occur when the body's own immune system attacks the thyroid and targets thyroglobulin. Antibodies to thyroid peroxidase (anti-TPO) also occur in autoimmune disorders targeting the thyroid gland (1).

ELEVATED ANTI-TG

Normal serum levels of anti-Tg are less than 4.11 IU/mL (2). Elevated anti-Tg are found in conjunction with anti-TPO in most cases of Hashimoto's thyroiditis (autoimmune disorder causing hypothyroidism) and Graves' disease (autoimmune disorder causing hyperthyroidism) (3). Although in rare cases of hypothyroidism, only anti-Tg levels are increased (4).

Elevated anti-Tg are also frequently associated with other autoimmune disorders, including rheumatoid arthritis, pernicious anaemia and type I diabetes, and 30-60% of thyroid carcinoma cases (5).

HASHIMOTO'S THYROIDITIS

Hashimoto's thyroiditis is the most common cause of hypothyroidism. It is an autoimmune disorder that results in chronic inflammation of the thyroid, inhibiting the normal function of the thyroid, which results in low thyroid hormone production. Hashimoto's thyroiditis usually progresses slowly over many years (6). The symptoms can include fatigue, puffy eyes and face, dry hair and skin, constipation, slower heart rate, constantly feeling cold, confusion, and depression (1,7).

Treatment options for hypothyroidism include daily medications (e.g. levothyroxine), natural thyroxine hormone extracts, and reduced consumption of substances that affect levothyroxine absorption (e.g. fiber, soy, iron) (8).

GRAVES' DISEASE

Graves' disease is the most common cause of hyperthyroidism, affecting about 1 in 200 people in the United States. It is an autoimmune disorder that causes the thyroid to produce more hormones than normal. It usually affects people between 30 and 50 years of age, with rates seven to eight times higher in females than males. The symptoms can include a fast heart rate, high blood pressure, excess sweating, shaky hands, anxiety, and weight loss. In older people, the signs may be less obvious, with symptoms that include weakness, confusion, and depression (9).

Medication, radioactive iodine, or surgical removal of the thyroid gland are effective treatments for hyperthyroidism (8).

TEST PROCEDURE

Correct specimen collection and handling is required for optimal assay performance.

This test requires a blood sample from a finger prick. All supplies for sample collection are provided in this kit. First wash and dry hands. Warm hands aid in blood collection. Clean the finger prick site with the alcohol swab and allow to air dry. Use the provided lancet to puncture the skin in one quick, continuous and deliberate stroke. Wipe away the first drop of blood (as it may be contaminated with tissue fluid or skin debris). Massage finger to increase blood flow at the puncture site and hold in a position that gravity facilitates the collection of blood on the fingertip. Transfer the blood to the blood collection card or blood collection tube (microtainer).

Avoid squeezing or 'milking' the finger excessively. If blood flow stops, perform a second skin puncture on another finger, if more blood is required.

Dispose of all sharps safely and return sample to the laboratory in the provided prepaid return shipping envelope.

Upon receipt at the laboratory, the blood sample is analyzed by the fully automated Alinity i Anti-Tg chemiluminescent microparticle immunoassay on the Alinity ci series analyzer. This assay measures anti-Tg levels by binding to Tg coated microparticles. The amount of anti-Tg in the blood sample is measured in relative light units by a chemiluminescent reaction.

TEST INTERPRETATION

This assay will provide accurate anti-Tg values for the tested specimen. This value is to be used in conjunction with other clinical and laboratory information for analyses of thyroid function.

DISCLAIMERS/LIMITATIONS

These results should be interpreted in conjunction with other laboratory and clinical information.

Additional testing is recommended if anti-Tg results are inconsistent with clinical evidence.

Interferences from medication or endogenous substances may affect results.

The presence of anti-Tg autoantibodies does not confirm autoimmune thyroid disease or abnormal thyroid function.

Correct specimen collection and handling is required for optimal assay performance.

REFERENCES

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