

Thyroxine Binding Globulin (TBG)

Description	<p>Thyroid-binding globulin (TBG) is produced in the liver and is a circulating protein that reversibly binds thyroid hormones 3,5,3'-triiodothyronine (T3) and thyroxine (T4) and carries them in the bloodstream.</p> <p>The reference range for TBG is 16-24mg/L.</p>
Indication	Hypo and hyperthyroidism, genetic TBG deficiency, liver disease, renal disease, severe systemic illness, Cushing's syndrome, malnutrition, and pregnancy
Additional Info	<p>T3 and T4 do not circulate the blood stream freely at high levels - only 0.3% or less. TBG, transthyretin (TTR or prealbumin), and albumin are the 3 proteins that carry thyroid hormone in the body. TBG transports nearly 75% of serum T4 and T3 and has a 10-fold greater affinity for T4 than for T3. Circulating TBG is typically only 25% saturated with T4.</p> <p>TBG levels are important to consider if a patient seems to have normal thyroid function but abnormal levels of Total T4 or T3—in other words, when total thyroid hormone levels do not correlate with a patient's thyrometabolic status. An increase in TBG may result in an increase in total T4 and T3 without an increase in hormone activity in the body. Increased TBG levels may be due to hypothyroidism, liver disease, and pregnancy. In cases of high TBG, more thyroid hormone will be bound, decreasing free hormone in the blood.</p> <p>Low levels of TBG may be found in cases of genetic TBG deficiency. Those patients may be misdiagnosed as hyperthyroid or hypothyroid but have normal thyroid levels and warrant no treatment. Decreased TBG levels may also be due to hyperthyroidism, renal disease, liver disease, severe systemic illness, Cushing's syndrome, medications, and malnutrition. If TBG levels are low, total thyroid levels will be low and free thyroid hormone levels may be normal or low.</p>
Concurrent Tests	Thyroid function tests (TFTs)
Dietary Requirements	N/A
Interpretation	An increase in TBG may result in an increase in total T4 and T3 without an increase in free hormone activity in the body. TBG levels can be of use when thyroid function test results are discordant.
Collection Conditions	Plain serum tube.
Frequency of testing	As needed