# Thyroglobulin (serum)

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| **Description** | Thyroglobulin is a protein produced by the thyroid gland. It serves as a storage pool for thyroid hormones, and undergoes proteolytic cleavage under the stimulation of TSH to release T4 and T3. As it is only produced by thyroid tissue and cancerous thyroid cells, it is a specific tumour marker for papillary or follicular thyroid cancer. |
| **Indication** | In patients with thyroid cancer, thyroglobulin may be measured to monitor the effectiveness of treatment and to detect tumour recurrence in patients who have undergone total thyroidectomy and $^{131}$iodine ablation. The measurement of thyroglobulin has no role in the diagnosis of thyroid cancer. |
| **Additional Info** | Thyroid cancer patients often present with a nodule or goitre. TFTs should be used to rule out hypothyroidism or hyperthyroidism as a cause. Patients with thyroid cancer are generally euthyroid.<br>For best sensitivity thyroglobulin should be measured when the TSH is >30mU/L (after thyroxine withdrawal or the use of recombinant human TSH). If thyroglobulin is already detectable, there is no need for TSH stimulation. |
| **Concurrent Tests** | TSH status should be assessed whenever thyroglobulin is measured. Thyroglobulin antibodies are generally measured with thyroglobulin. If a patient develops thyroglobulin antibodies, thyroglobulin test results may be falsely elevated or decreased and must be interpreted with caution. The presence of the antibodies may lessen or eliminate the usefulness of the thyroglobulin test as a tumour marker. |
| **Dietary Requirements** | N/A. |
| **Interpretation** | In patients who have been treated with total thyroidectomy and $^{131}$iodine ablation, detectable serum thyroglobulin is highly suggestive of residual or recurrent tumour but could also indicate persistence or a remnant normal thyroid tissue. In patients who have not had total thyroidectomy and $^{131}$iodine ablation, it has limited ability to differentiate between tumour and thyroid remnant. |
| **Collection Conditions** | N/A |
| **Frequency of testing** | Samples for thyroglobulin should not be collected for at least 4-6 weeks after thyroidectomy or $^{131}$iodine therapy. The frequency or thyroglobulin measurement during follow-up of thyroid cancer will be determined by the clinical condition of the patient, whether the tumour has been deemed high risk or low risk and on previous results. |