



# Serology for Nasopharyngeal & Thyroid Cancers

**Serology, also known as blood serum testing, can determine the levels of relevant biomarkers in the blood. Biomarkers provide information about the presence of a disease.**

While serology is less often used for head and neck cancers than it is for other forms of cancer, it does offer advantages for diagnosing and monitoring nasopharyngeal and thyroid cancer. These cancers have unique biomarkers associated with their presence. Checking the levels of these relevant biomarkers throughout your course of treatment can allow the physician to determine the status of the cancer.

## Nasopharyngeal Cancer Biomarkers

One biomarker often associated with cancer in the nasopharyngeal, or upper throat, region is **Epstein-Barr Virus (EBV)**. Measuring EBV DNA and antibody levels made by the patient's immune system can be a helpful indicator of treatment response.

## Thyroid Cancer Biomarkers

Throughout the course of treatment for thyroid cancer, you will undergo a series of blood tests to measure the levels of various hormones and proteins in the bloodstream. These test results help doctors understand disease progress and determine appropriate solutions. Below you will find a list of relevant biomarkers for thyroid cancer, specifically.

### Thyroid Stimulating Hormone (TSH) levels

- TSH is a hormone produced in the brain by the pituitary gland. It plays a role in maintaining hormone balance and stimulating growth of thyroid tissue.
- TSH levels are very important to monitor for all types of thyroid disease.



Please note that this information is intended for educational purposes. It does not replace consultation with your doctor, and it should not be interpreted as medical advice. We encourage you to speak to your health care provider if you have further questions or concerns regarding your medical care.

For more information scan this code or visit:

<https://thancguide.org/cancer-basics/diagnosis/serology/>

## **Free Thyroxine (T4) levels**

The thyroid gland produces T4 which regulates metabolism and other bodily functions. High levels of T4 indicate an overactive thyroid, while low levels indicate an underactive thyroid. Dysregulation of T4 levels is common in thyroid cancers.

## **Thyroglobulin (Tg) levels**

Tg is essential for thyroid hormone production. Generally, after the thyroid is removed and the patient has undergone RAI treatment, Tg levels will decrease. An increase in Tg levels post-treatment can signal disease recurrence or progression and influence the need for additional treatment.

Serum Tg levels should be measured with a blood test every 6-12 months initially, or more frequently if you are a high-risk patient.

## **Thyroglobulin Antibody (TgAb) levels**

TgAb can react with Tg in the blood. Due to these interactions, high levels of TgAb may produce inaccurate results for Tg levels. Inaccurate lab results for Tg levels may interfere with a doctor's diagnosis of disease recurrence or progression. It is important to measure these levels simultaneously to ensure a comprehensive assessment of the results.

## **Calcitonin levels**

C-cells (parafollicular cells) are found in the thyroid gland and produce the hormone calcitonin. The role of calcitonin is to help regulate blood calcium and phosphate levels. Elevated calcitonin levels can signal to a physician that something is abnormal. Typically, increased calcitonin levels are associated with medullary thyroid cancer (MTC) because it originates in the C-cells.

## **Carcinoembryonic Antigen (CEA) levels**

CEA is typically only present during fetal development or at extremely low levels in healthy adults. Elevated CEA levels in healthy adults can signal to a physician that something is abnormal. Increased CEA levels are associated with certain cancers, particularly MTC.



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