

# Diasorin

FOR OUTSIDE THE US AND CANADA ONLY

IMMUNODIAGNOSTIC SOLUTIONS

## LIAISON® Thyroid Panel

A Comprehensive Testing Solution for the  
Detection of Thyroid Disorders

**E** ENDOCRINOLOGY



# Minimise the burden of thyroid disorders

The thyroid gland, or simply the thyroid, is one of the largest endocrine glands and consists of two connected lobes. The thyroid gland is found in the neck, posterior to the thyroid cartilage (which forms the laryngeal prominence, or “Adam’s apple”). It secretes thyroid hormones thyroxine (T4) and triiodothyronine (T3), regulating metabolism, oxygen consumption of cells, cholesterol levels, growth and children’s development.

## Incidence and epidemiology<sup>(1)</sup>

Thyroid cancer the most common endocrine malignancy and it represents <1% of all human tumors. The annual incidence of thyroid cancer varies considerably by geographic area, age and sex.

## Thyroid disorders include<sup>(2,3)</sup>:

- > **HYPERTHYROIDISM: ABNORMALLY INCREASED CONCENTRATION** of the thyroid hormones T3 and T4, which is most commonly caused by the development of Graves’ disease, an autoimmune disease in which antibodies are produced stimulating the thyroid to secrete excessive quantities of thyroid hormones;
- > **HYPOTHYROIDISM: ABNORMALLY DECREASED CONCENTRATION** of the thyroid hormones T3 and T4;
- > **THYROIDITIS:** Hashimoto’s thyroiditis and postpartum thyroid cancers are two types of thyroiditis where the patient starts with initial hyperthyroidism, followed by a period of hypothyroidism (the overproduction of T3 and T4 followed by the underproduction of T3 and T4);
- > **THYROID NODULES:** generally a benign thyroid neoplasm (tumor), but may be malignant.

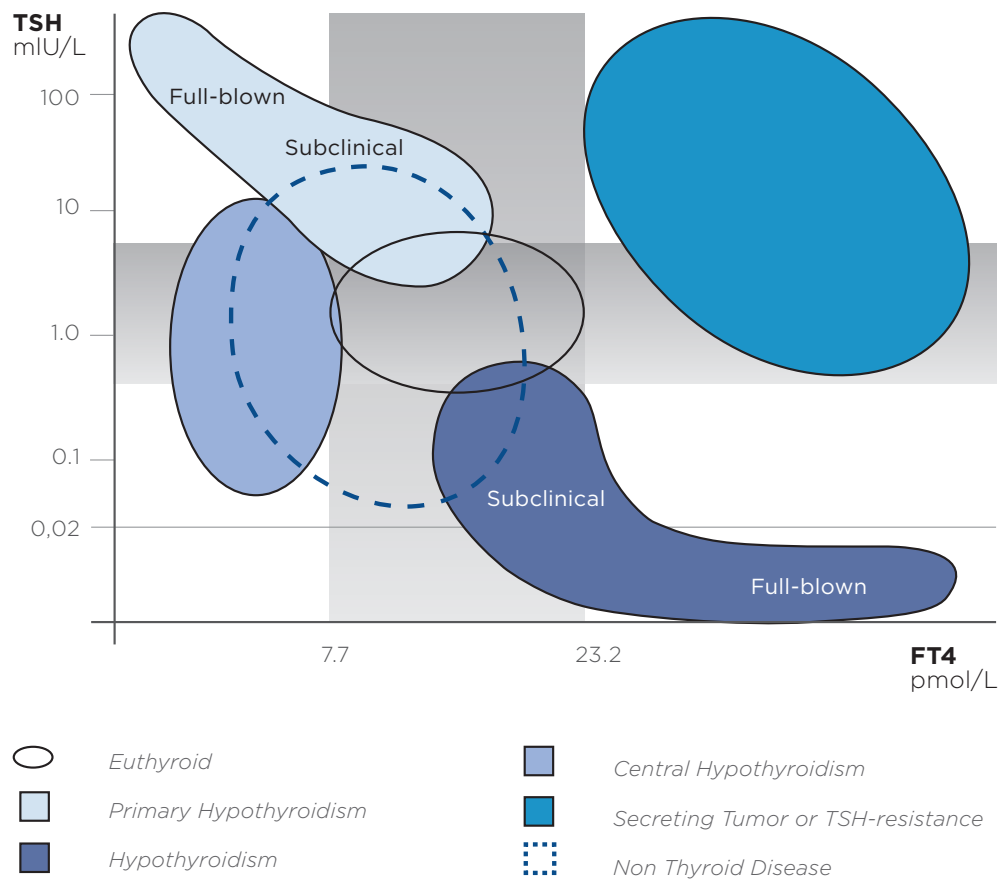
All these disorders may give rise to a goiter (a swelling of the neck of larynx resulting from enlargement of the thyroid gland).

## Diagnostic testing<sup>(4,5,6)</sup>

Apart from a clinical examination, diagnostic testing includes neck ultrasound (US), fine-needle biopsy and surgery.

Serum thyroid function tests include: **TSH, T3, T4, fT3, fT4, (hs)Tg** and for autoimmune thyroiditis **anti-TPO, anti-Tg** and **TRAb**.

A general suggested flow chart is:



In the majority of cases, thyroid cancer presents as a painless mass in the neck; in some cases one may be able to feel a hard nodule in the neck. It is very unusual for thyroid cancers to present with symptoms, unless they have been diagnosed.

Diagnosis is made using a needle biopsy and various radiological studies. While thyroid nodules are common (4%–50% depending on the diagnostic procedures and patient's age), thyroid cancer is rare (~5% of all thyroid nodules).

## In case of thyroid cancer<sup>(1,7)</sup>

According to ESMO guidelines published in Annals of Oncology, the recommendations can be summarized as:

### DIAGNOSIS:

- > Thyroid **ultrasound** supplemented by fine **needle aspiration cytology** as a first-line diagnostic procedure
- > In case of follicular neoplasia, with normal TSH and a “cold” appearance during the thyroid scan, **surgery** should be considered
- > **Serum calcitonin determination** is reliable for the diagnosis of medullary thyroid cancer

### DIFFERENTIATING THYROID CANCER:

- > Initial treatment is total or near-total **thyroidectomy, where patients receive replacement thyroid hormone therapy (levothyroxine - LT4) post-surgery**
- > 2 to 3 months after initial treatment **thyroid function tests (fT3, fT4 & TSH)** should be carried out to determine efficacy of the suppressive therapies  
6 to 12 months post-surgery the patients are screened again for thyroid function test **including Tg**
- > Patients are considered disease free after subsequent **physical examination** and **basal serum Tg measurement**

### MEDULLARY THYROID CANCER (MTC):

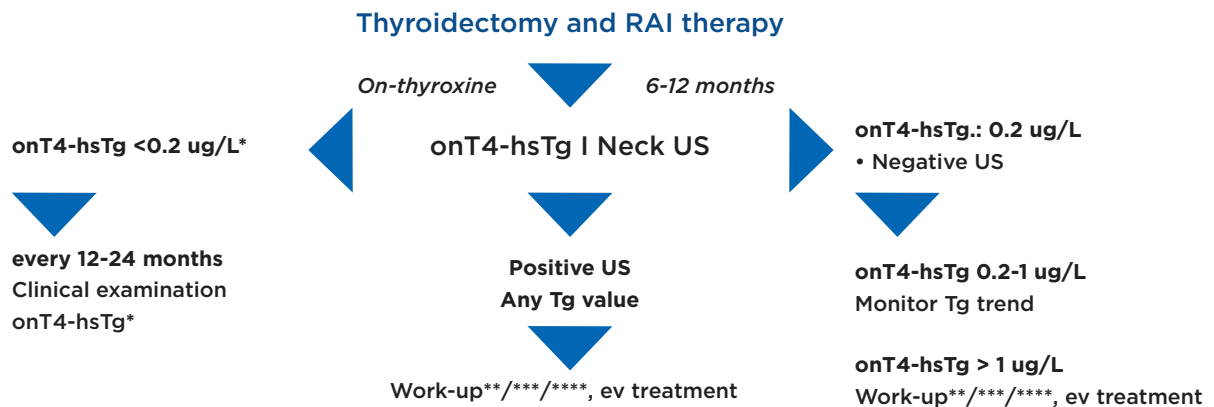
- > Before surgery, patients with suspicious MTC should undergo a staging work-up including **basal serum calcitonin, CEA and metanephrines' determinations**
- > After total thyroidectomy, replacement **thyroxine treatment** should be given to maintain a TSH concentration within the normal range
- > **Measurements of serum markers, calcitonin and CEA and TSH**, should be repeated every 6 months for the first 2-3 years

Follow-up flow chart from: European Journal of Endocrinology<sup>(8-9)</sup>

The added value of post-surgical RAI treatment should be based on individual prognostic factors regarding risk cancer related to death or disease recurrence. The risk factor stratification is paramount. While it is widely agreed on that post-surgical RAI treatment is indicated in high-risk DTC patients, there is less consensus regarding the indications in intermediate and low-risk patients.

**Total thyroidectomy and <sup>131</sup>I ablation  
post-treatment whole-body scan (PT-WBS)**

## TgAb-negative patients



\*Can be combined with neck US (not mandatory)

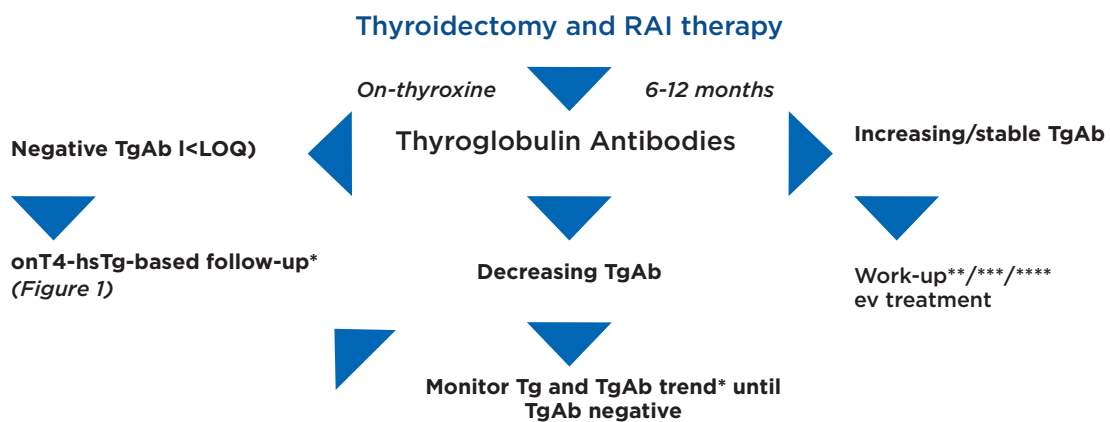
--Radioiodine whole body scintigraphy (selective, second-line)

--\*computed tomography, magnetic resonance, positron emission tomography (selective, third line)

--Neck US in all cases

**Figure 1.** Proposed hsTg-based follow-up algorithm for DTC patients who are negative for TgAb. hsTg, highly-sensitive thyroglobulin measurement; LOQ, limit of quantification; onT4, measurement taking during continuing intake of levothyroxine; RAI, radioiodine; TgAb, serum autoantibodies against thyroglobulin; US, ultrasound.

## TgAb-positive patients



\*can be combined with neck US (not mandatory)

-- Radioiodine whole body scintigraphy (selective, second-line)

.....C omputed tomography, magnetic resonance, positron emission tomography (selective, third line)

\*\*\*Neck US In all cases

**Figure 2.** Proposed hsTg- and TgAb-based follow-up algorithm for DTC patients who are positive for TgAb. hsTg, highly-sensitive thyroglobulin measurement; LOQ, limit of quantification; on T4, measurement taking during continuing intake of levothyroxine; RAI, radioiodine; TgAb, serum autoantibodies against thyroglobulin; US, ultrasound.

## High-efficiency chemiluminescent thyroid testing:

- > FULL AUTOMATION
- > BARCODED SAMPLES & REAGENTS
- > LONG CALIBRATION STABILITY
- > CALIBRATORS INCLUDED
- > EASY HANDLING
- > STORED MASTER CURVE
- > SMALL SAMPLE VOLUME
- > HIGH THROUGHPUT

## Ordering Information

### LIAISON® THYROID PANEL INCLUDES THE FOLLOWING ASSAYS

Code	Kit
<b>311211</b>	LIAISON® TSH
<b>311311</b>	LIAISON® T3
<b>311411</b>	LIAISON® T4
<b>311531</b>	LIAISON® FT3
<b>311611</b>	LIAISON® FT4
<b>317220</b>	LIAISON® Tg II Gen
<b>311701</b>	LIAISON® Anti-TPO
<b>311711</b>	LIAISON® Anti-Tg
<b>311810*</b>	LIAISON® TSH-R Ab

\*under development

#### REFERENCES:

1. Annals of Oncology 2012, 23 (suppl 7)
2. [www.thyroid.org](http://www.thyroid.org)
3. David S. Cooper et. al. Thyroid 2009, 19, 1167-1214
4. Management of Differentiated Thyroid Cancer: The Standard of Care. J Nucl Med 2022; 63:189-195
5. L. Giovanella - RIMeL / IJLaM 2009:5
6. Elisei, R. et al. A. Nat. Rev. Endocrinol. 8, 2012, 466-475
7. Linda Thienpont et al., Eur Thyroid J. 2014, 5
8. Luca Giovanella, et al., European Journal of Endocrinology (2014) 171, R33-R46
9. Thyroglobulin and thyroglobulin antibody: an updated clinical and laboratory expert consensus. European Journal of Endocrinology, 2023

Fully automated, high throughput platform ensures standardized and reliable diagnostic results in less than one hour.

#### DiaSorin Australia Pty Ltd

Building B,  
Suite 1, Level 4,  
11 Talavera Road,  
Macquarie Park NSW 2113  
Ph. 1300 259 835 (AUS) | 0508 848 660 (NZ)  
[www.diasorin.com](http://www.diasorin.com)

Contact Diasorin today!

Product availability subject to required regulatory approval