



CPAL

Central Pennsylvania Alliance
Laboratory

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New test – Thyroglobulin Group

Starting date

Thyroglobulin group includes thyroglobulin(Tg) and autoantibodies against thyroglobulin(ATG). Starting date is June 14, 2004.

Background:

Thyroglobulin is normally synthesized in the follicular cells of the thyroid gland under the influence of thyroid-stimulating hormone (TSH). The primary use of serum Tg measurements is in the monitoring of patients with a diagnosis of differentiated thyroid cancer. Approximately two thirds of these patients have an elevated pre-operative serum Tg level that confirms the tumor's ability to secrete Tg and validates the use of serum Tg measurements as a post-operative tumor marker. In general, changes in serum Tg post-operatively represent changes in tumor mass, provided that a constant TSH level is maintained with L-T4 therapy (1). In the follow-up management of low risk patients with DTC, it was reported that a TSH-stimulated Tg test using a Tg cutoff of 2 ng/mL (either after thyroid hormone withdrawal or 72 hour rhTSH) is sufficiently sensitive to detect metastases (2).

The presence of autoantibodies against thyroglobulin can interfere with the determination of Tg in serum resulting in falsely low or undetectable values. If ATG is present, low and undetectable Tg levels should be interpreted with caution and with clinical correlation. CPAL Lab can test both Tg and ATG off the same tube and on the same platform. CPAL offers a Tg group that includes both Tg and ATG. Both Tg and ATG will be tested using DPC Immulite 2000. ATG has been on CPAL's test menu. Tg will be a new test on CPAL's menu.

Assay performance and validation:

The functional sensitivity of Tg is 0.9 ng/mL. The reportable range is 0.9-300 ng/mL.(3)
The reference Range of 2.0 to 56 ng/mL was verified at CPAL Lab using 90 donor serum samples. The Immulite Tg 2000 method was compared to the Nichols Advantage, the method used by Quest Diagnostics, on 54 patient samples. A linear correlation exists between the two results. When comparing 39 pairs of Tg results with values less than 60 ng/mL, the correlation function is $\text{Immulate} = 0.82 \times \text{Advantage} + 0.18$, and $r^2 = 0.92$.

Cautions:

When monitoring patients over time, Tg values obtained with different methods can not be used interchangeably due to the differences in method and reagent specificity.

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For question about this, and other, information, call Central Pennsylvania Laboratory at 1-888-480-1422

Specimen Collection and Handling:

Specimen type is serum. Minimum volume is 0.5 mL. Specimen is stable for 3 days at 2-8⁰C.

References:

- (1) Laboratory Support for the Diagnosis of Thyroid Disease. Laboratory Medicine Practice Guidelines. Volume 13, 2002. The National Academy of Clinical Biochemistry.
- (2) “A consensus report of the role of serum thyroglobulin as a monitoring method for low-risk patients with papillary thyroid carcinoma”. Mazzaferri, EL, et. al. Journal of Clinical Endocrinology & Metabolism 88(4): 1433-1441, 2003.
- (3) Package insert, Thyroglobulin. DPC Immulite 2000. 2003-08-12

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