Introduction:
The numerous varieties of thyroid gland disorders are characterized by an immune response which is both humoral and cell mediated. The detection of anti-thyroid antibodies is important in the diagnosis of autoimmune thyroid diseases particularly in patients with subclinical autoimmune thyroiditis.1,2 Humoral activity is easier to detect than cell mediated responses and most laboratories use direct immunoassays in the form of the most sensitive assay system for measuring the different types of thyroid specific autoantibodies.3 Among the three most common thyroid disorders, thyroid autoantibodies titers are highest in Hashimoto’s disease (autoimmune thyroiditis), Graves disease and moderate in primary myxedema. This technique of measurement of these antibodies is recommended for the differential diagnosis of these disorders.
There is considerable overlap of thyroid autoantibodies within the various thyroid disorders, such as primary myxedema, nontoxic goiter, carcinoma of the thyroid and juvenile lymphocytic thyroiditis. Thyroid autoantibodies are also present in multiple non-thyroid disorders, such as Sjogren’s syndrome, pemphigus, Addison’s disease, myasthenia gravis and dermatomyositis. The differences in the specific antibody titers to the antigen areas. The slide is now ready to use.

Materials Provided:
1. FITC Conjugate No. 1502L (3.0 ml) (for use with Primate Thyroid slides).
2. Place a drop of diluted serum (20 to 30 µl) and controls over antigen wells.
3. TA positive control No. 5223L (1.0 ml) for specificity of the test procedure.
4. Universal negative control No. 1000L (1.0 ml) should be stored at 2-8 C or lower upon receipt. Check label for specific expiration date.
5. Buffer Pack No. 1601. Rehydrate buffer with 1 liter of sterile 0.85% saline. Store buffer at room temperature storage for 5 years. The reconstituted buffer does not contain preservatives and should be stored at 2-8 C. Buffer does not contain preservatives and should be stored at 2-8 C. Care should be taken to avoid contamination.
6. Mounting Medium No. 1610 is stable when stored at 2-8 C. Check label for specific expiration date.
7. Water Bath.
8. Apply a 22 x 70 mm coverslip. Examine the slide under a fluorescence microscope. Note: to maintain fluorescence, store mounted slide in a dark refrigerator.
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10. Thyroid Carcinoma 28-65% 20%
11. Graves Disease 95% 98%
12. Pernicious Anemia 28-50% 26-67%
13. Allergic Disorders 20% 10%
14. Normal Subjects 5-15% 2-7%
Results:
Thyroid autoantibodies may be found in various disease states but high titers are generally found in Hashimoto’s disease and Graves’ disease. Anti-thyroglobulin and microsomal antibodies may occur in combination or alone. The significance of colloid 2 antibody is yet unclear but it is possible that these antibodies are more specific for anti-thyroglobulin antibodies. Patients may have free antibodies combining sites. Additional tests such as studies on iodine metabolism, plasma protein patterns, thyroid biopsy and clinical findings will aid in establishing a final diagnosis.
Titer of thyroid autoantibodies can be of diagnostic value. One may expect to find the highest antibody titers in patients whose glands are fibrous and show predominately lymphocytic and plasma cell infiltration. Patients with Hashimoto’s disease frequently have high titers, but those with primary myxedema have low titers. In cases of papillary cancer of the thyroid, thyroid antibodies may be present to a degree severe in the disease. Patients with multi-focal thyroiditis, of the types associated with cancer of the thyroid, generally have low titers (Table 1). Thyroglobulin antibodies in these instances, indirect immunofluorescence for CA2 and microsomal antibodies recommended. A positive result is observed as bright granular fluorescence of the epithelial lining of the thyroid follicles (microsomal antibody) or as a thread fluorescence in the connective tissue (anti-thyroglobulin). A decrease ground glass fluorescence in some of the thyroid follicles indicates colloid 2 antibody.

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<tr>
<th>Thyroid Autoantibodies In Thyroid and Non-thyroid Disorder</th>
<th>Anti-thyroge-</th>
<th>Anti-microsomal</th>
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<tr>
<td>Disease</td>
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<td>Thyroid Autoantibodies</td>
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<td>Thyroid Autoantibodies</td>
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| Titer Interpretation: The titer is the highest dilution of the patient’s serum showing a weak 1+ fluorescence of the respective thyroid antigens. | less than 10 | Negative, may be found in normal individuals |

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In cases of papillary cancer of the thyroid, thyroid antibody titers are proportional to the severity of disease.

Limitations of Procedure:

1. No diagnosis should be based on a single serologic test since various host factors must be taken into consideration.

2. Additional confirming tests for thyroid disease include thyroid biopsies, immunoglobulin quantitation, iodine metabolism, and thyroglobulin hemagglutination titers and the radio receptor assay for LATS.

3. Conditions other than Hashimoto's disease and Graves' disease give positive results.

4. Thyroid autoantibodies may be found in apparently healthy individuals.

5. Thyroid autoantibodies may have a genetic predisposition in families with autoimmune thyroid disease.

6. Positive serum anti-thyroid antibodies in patients without overt thyroid disease may indicate the existence of lymphocytic infiltration of the thyroid gland (subclinical autoimmune thyroiditis).

7. Neonatal thyrotoxicosis may occur in infants born to mothers with a history of Graves' disease who have been euthyroid throughout pregnancy.

8. Identification of serum anti-thyroglobulin antibodies is useful in the diagnosis of thyrotoxicosis, but antibody titer often varies with different methods.

9. Often, cases of advanced myxedema will only have antibodies against thyroglobulin due to the loss of microsomal antibodies with the progressive destruction of the thyroid gland.

10. The most definite test for Graves' disease is the Long-Acting Thyroid Stimulator (LATS) assay which requires the use of radio labeled thyroid stimulating hormone.

Precautions:

1. All human components have been tested by radioimmunoassay for (HBsAg) and HTLVIII/LAV by an FDA approved method and found to be negative. (Not repeatedly reactive). However, this does not assure the absence of HBsAg or HTLVIII/LAV. All human components should be handled with appropriate care.

2. The sodium azide (0.095%) included in the controls and conjugate is toxic if ingested.

3. Do not use components beyond their expiration date.

4. Follow the procedural instructions exactly as they appear in this insert to insure valid results.

5. For in vitro diagnostic use.

6. Handle slides by the edges since direct pressure on the antigen wells may damage the antigen.

7. Once the procedure has started do not allow the antigen in the wells to dry out. This may result in false negative test results, or unnecessary artifacts.

BIBLIOGRAPHY:


5. Thyroid autoantibodies may have a genetic predisposition in families with autoimmune thyroid disease.


