AUTOZYME™ TAB
Anti-Tg antibodies

**Kit Contents Symbols**

- **CAL** Calibrators
- **CONTROL** Negative Control
- **CONTROL+** Positive Control
- **BUF/WASH** Wash Buffer
- **DIL/SPE** Sample Diluent
- **CONJ** Conjugate solution
- **SUB** Substrate solution
- **STOP** Stop Solution
- **SORB** Solid Phase – Antigen Coated Wells

1. **Intended Use**
AUTOZYME™ TAB Tg is an enzyme immunoassay (EIA) for the screening and detection of auto-antibodies against human thyroglobulin (Tg) in human serum. The assay is designed to be performed quantitatively and to be used as an aid in the diagnosis of thyroid disorder.

The standard values are traceable to the following reference preparation:
Anti-Tg - NIBSC 65/93 (1st IRP)

AUTOZYME™ TAB Tg has been specifically designed with automation in mind and can be adapted to automated immunoassay systems.

2. **Background**
Autoimmune thyroid gland disorders are characterised by the detection of anti-thyroid antibodies against Tg and TPO antigens. TPO has been identified as the specific antigenic determinant of the thyroid microsomal antigen.

The presence of auto-antibodies to thyroid antigens correlates with the degree of lymphocytic infiltration of the thyroid gland, the hallmark of Hashimoto’s thyroiditis. Circulating auto-antibodies to TPO are present in the serum of over 90% of patients with thyroid autoimmune diseases such as Hashimoto’s thyroiditis, Graves’ disease, diopathic hypothyroidism and sub-acute thyroiditis. In each case, the prevalence of anti-TPO antibodies is greater than that of anti-Tg antibodies.

3. **Principle**
AUTOZYME™ TAB employs a unique antigen-coated microwell technology, which is ideal for the batch-screening of large or small numbers of samples for anti-thyroid antibodies.

**First Incubation**
AUTOZYME™ TAB Tg wells are provided coated with purified antigen (human thyroglobulin). When calibrators, controls or diluted sera are added, any anti-thyroglobulin antibodies present will bind to the well surface. The wells are then washed in buffer.

**Second Incubation**
Horse Radish Peroxidase-conjugated goat anti-human antibodies are added to the well, which will bind to any captured anti-thyroglobulin antibodies. Unbound conjugate is removed by washing.

**Third Incubation**
A pale green substrate is then added to the wells. The intensity of the green colour formed is proportional to the concentration of anti-thyroglobulin antibodies bound in the first incubation. The reaction is stopped with a low pH solution.

4. **Kit Contents**
6 vials calibrators (1.5 mL ready to use)

<table>
<thead>
<tr>
<th>Calibrator</th>
<th>Anti-Tg (IU/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>300</td>
</tr>
<tr>
<td>4</td>
<td>750</td>
</tr>
<tr>
<td>5</td>
<td>3000</td>
</tr>
<tr>
<td>6</td>
<td>7500</td>
</tr>
</tbody>
</table>

- 1 vial wash buffer concentrate, 50 mL (x20)
- 1 vial sample diluent, 100 mL

5. **Storage**
The kit should be stored at 2 – 8°C. Do not use the reagents beyond their expiry date. Do not freeze. Keep all reagents away from direct sunlight.

6. **Sample Handling**
AUTOZYME™ TAB Tg may be performed on human serum samples. Samples should be assayed within 24 hours of collection or stored frozen at -15°C or colder. Repeated freeze-thawing is not advisable. Do not heat treat samples.

7. **Additional Reagents and Equipment**
Deionised or freshly distilled water.

8. **Procedural Precautions**
Numbering of each strip is advised prior to commencing the assay.

- Avoid the use of icteric, lipaemic or grossly haemolysed samples.
- Always change tips between different calibrators, samples or control sera to prevent sample carry over.
- Never allow the same pipette tip to be used with different reagents. Special care is needed to prevent contamination of the substrate by the conjugate.
- The substrate should be pale green. Any green colouration (absorbance >0.200) indicates substrate contamination and the substrate should be discarded. The well washing procedure is critical for the successful performance of the test, especially between conjugate and substrate incubations (i.e. the second and third incubations).

Do not use the kit beyond the expiry date given on the label. Multiple re-use could increase the risk of reagent contamination.

1. Prepare the wash buffer as follows: dilute contents of the wash buffer concentrate (x20) vial to 1000 mL with deionised water.
2. Dilute the patient samples 1/200 using the sample diluent e.g. 10 µL sample added to 1990 µL diluent. The calibrators and kit controls do not require dilution.
3. Remove the antigen-coated microwells from the foil sachet and seal any unrequired wells in the foil sachet, along with the desiccant sachet.
4. Dispense 50 µL of each calibrator, kit control or diluted patient sample into appropriate wells. Incubate for 30 minutes at room temperature (18 - 25°C). It is recommended that calibrators and controls be tested in duplicate and samples can be tested in singles or duplicate.
5. Gripping the frame on the long sides to retain the strips, flick out the contents of the wells. Using the diluted wash buffer, wash the wells three times either with an automated plate washer set to at least 300 µL per well, or by adding 300 µL to each well and flicking out, gripping the frame on the long sides to retain the strips. Alternatively use a wash bottle. Blot the wells on absorbent material to remove any residual liquid.
6. Add 100 µL conjugate to each well and incubate for 30 minutes at room temperature (18 - 25°C).
7. Gripping the frame on the long sides to retain the strips, flick out the contents of the wells. Wash the wells three times using the same procedure as in step 5.
8. Dispense 100 µL substrate into each well, ensuring that it is initially pale green and incubate for 30 minutes at room temperature.
9. Stop the reaction by adding 100 µL of stopping buffer.
10. Measure the absorbance at 405nm on a 96-well microplate reader.

10. Calculation of Results

For each assay, prepare a calibration curve by plotting mean absorbance against calibrator concentration on linear graph paper, and interpolate unknowns. Alternatively, use a computerised curve-fit program.

Any sample giving values above the calibrator range should be diluted and retested.

11. Quality Control

Quality control samples for anti-Tg antibodies are provided within the kit. Good laboratory practice requires that quality control samples be included in every run to check on assay performance.

The substrate contains ABTS™ which is harmful if swallowed in copious amounts and may cause skin irritation if exposed for prolonged periods. In case of skin contact, wash with soap and water. Flush eyes with copious amounts of water.

The calibrators and controls contain human source material. Although found negative when tested for HIV-1 and HIV-2 antibodies, HCV and hepatitis B surface antigen, no test can guarantee their absence.

Therefore, the calibrators should be handled using the same safety precautions employed when handling any potentially infectious material.

Used calibrators, controls, samples, pipette tips and plates should be handled as clinical waste and incinerated or disposed of in accordance with local rules. Other reagents should be diluted and flushed down the drain. It is recommended that gloves are worn when handling such items.

ABTS™ (2, 2’-azino-bis (3-ethylbenzothiazoline-6 sulphonic) acid) is a trademark of Roche Diagnostics.

Safety data sheets are available on request.

Target ranges for the controls are quoted on the QC certificate. If either control value falls outside the quoted range, the results are invalid and the assay should be repeated.

12. Performance Data

a. Precision data:

<table>
<thead>
<tr>
<th>Intra-assay</th>
<th>Anti-Tg Antibodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 1 (n=20)</td>
<td>5281</td>
</tr>
<tr>
<td>Sample 2 (n=20)</td>
<td>2496</td>
</tr>
<tr>
<td>Sample 3 (n=20)</td>
<td>136.0</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Inter-assay</th>
<th>Anti-Tg Antibodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 1 (n=12)</td>
<td>4807</td>
</tr>
<tr>
<td>Sample 2 (n=12)</td>
<td>2496</td>
</tr>
<tr>
<td>Sample 3 (n=12)</td>
<td>130.5</td>
</tr>
</tbody>
</table>

b. Minimum detectable concentration:

The minimum detectable concentration, defined as the concentration equal to 2 standard deviations from the mean of the sample diluent, was found to be less than:

anti-Tg antibodies 20 IU/mL

c. Reference values:

AUTOZYME™ TAB Tg was used to determine the anti-Tg levels of >200 serum samples from normal blood donors with no apparent abnormalities. The data was evaluated and the following range obtained:

Anti-Tg antibodies

Normal range < 180 IU/mL
Borderline 181-230 IU/mL
Positive > 231 IU/mL

It is advised that each laboratory establishes its own reference range.

13. Safety Precautions

For in vitro diagnostic use only.

For Professional Use only.

Bibliography