



User's Manual

Thyroglobulin Antibody ELISA Kit



DEIA1842



96T



This product is for research use only and is not intended for diagnostic use.

For illustrative purposes only. To perform the assay the instructions for use provided with the kit have to be used.

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PRODUCT INFORMATION

Intended Use

Anti-TG is an indirect solid phase enzyme immunoassay (ELISA) for the quantitative measurement of IgG class autoantibodies against thyroglobulin (TG) in human serum or plasma. The assay is intended for research use only.

Principles of Testing

Highly purified human thyroglobulin (TG) is bound to microwells. Antibodies against this antigen, if present in diluted serum or plasma, bind to the respective antigen. Washing of the microwells removes unbound unspecific serum and plasma components. Horseradish peroxidase (HRP) conjugated anti-human IgG immunologically detects the bound patient antibodies forming a conjugate/antibody/antigen complex. Washing of the microwells removes unbound conjugate. An enzyme substrate in the presence of bound conjugate hydrolyzes to form a blue color. The addition of an acid stops the reaction forming a yellow end-product. The intensity of this yellow color is measured photometrically at 450 nm. The amount of colour is directly proportional to the concentration of IgG antibodies present in the original sample.

Reagents And Materials Provided

Package size 96 determ.	
Qty.1	Divisible microplate consisting of 12 modules of 8 wells each, coated with highly purified human thyroglobulin (TG). Ready to use.
6 vials, 1.5 ml each	Combined calibrators with IgG class Anti-TG antibodies (A-F) in a serum/buffer matrix (PBS, BSA, NaN ₃ <0.1% (w/w)) containing: IgG: 100; 300; 1000; 3000; 9000 IU/ml. Ready to use.
2 vials, 1.5 ml each	Anti-TG Controls in a serum/buffer matrix (PBS, BSA, NaN ₃ <0.1%(w/w)) positive (1) and negative (2), for the respective concentrations see the enclosed QC Certificate. Ready to use.
1 vial, 20 ml	Sample buffer (Tris, NaN ₃ <0.1% (w/w)), yellow, concentrate (5×).
1 vial, 15 ml	Enzyme conjugate solution (PBS, Proclin 300<0.5% (v/v)), (light red) containing polyclonal rabbit anti-human IgG; labelled with horseradish peroxidase. Ready to use.
1 vial, 15 ml	TMB substrate solution . Ready to use.
1 vial, 15 ml	Stop solution (contains acid). Ready to use.
1 vial, 20 ml	Wash solution (PBS, NaN ₃ <0.1% (w/w)), concentrate (50×).

Materials Required But Not Supplied

1. Microplate reader capable of endpoint measurements at 450 nm
2. Multi-Channel Dispenser or repeatable pipet for 100 µl
3. Vortex mixer
4. Pipets for 10 µl, 100 µl and 1000 µl
5. Laboratory timing device
6. Data reduction software
7. Distilled or deionized water

8. Graduated cylinder for 100 and 1000 ml
9. Plastic container for storage of the wash solution

Storage

1. Store the kit at 2-8°C.
2. Keep microplate wells sealed in a dry bag with desiccants.
3. The reagents are stable until expiration of the kit.
4. Do not expose test reagents to heat, sun or strong light during storage and usage.
5. Diluted sample buffer and wash buffer are stable for at least 30 days when stored at 2-8°C.

Specimen Collection And Preparation

1. Collect whole blood specimens using acceptable techniques to avoid hemolysis.
2. Allow blood to clot and separate the serum by centrifugation.
3. Test serum should be clear and non-hemolyzed. Contamination by hemolysis or lipemia is best avoided, but does not interfere with this assay.
4. Specimens may be refrigerated at 2-8°C for up to five days or stored at -20°C up to six months.
5. Avoid repetitive freezing and thawing of serum samples. This may result in variable loss of autoantibody activity.
6. Testing of heat-inactivated sera is not recommended.

Reagent Preparation

Preparation of sample buffer

Dilute the contents of each vial of the sample buffer concentrate (5×) with distilled or deionized water to a final volume of 100 ml prior to use.

Store refrigerated: stable at 2-8°C for at least 30 days after preparation or until the expiration date printed on the label.

Preparation of wash solution

Dilute the contents of each vial of the buffered wash solution concentrate (50×) with distilled or deionized water to a final volume of 1000 ml prior to use.

Store refrigerated: stable at 2-8°C for at least 30 days after preparation or until the expiration date printed on the label.

Sample preparation

Dilute all patient samples 1:100 with sample buffer before assay. Therefore combine 10 µl of sample with 990 µl of sample buffer in a polystyrene tube. Mix well.

Controls are ready to use and need not be diluted.

Assay Procedure

1. Prepare a sufficient number of microplate modules to accommodate controls and prediluted samples.
2. Pipet 100 µl of calibrators, controls and prediluted samples in duplicate into the wells.
3. Incubate for 30 minutes at room temperature (20-28°C).
4. Discard the contents of the microwells and wash 3 times with 300 µl of wash solution.
5. Dispense 100 µl of enzyme conjugate into each well.
6. Incubate for 15 minutes at room temperature.
7. Discard the contents of the microwells and wash 3 times with 300 µl of wash solution.
8. Dispense 100 µl of TMB substrate solution into each well.
9. Incubate for 15 minutes at room temperature.
10. Add 100 µl of stop solution to each well of the modules and incubate for 5 minutes at room temperature.
11. Read the optical density at 450 nm and calculate the results. Bi-chromatic measurement with reference at 600-690 nm is recommended.

Note: The developed colour is stable for at least 30 minutes. Read optical densities during this time.

Automation

The Anti-Phosphatidyl Serine IgG/IgM ELISA is suitable for use on open automated ELISA processors. The test procedure detailed above is appropriate for use with or without automation.

Quality Control

This test is only valid if the optical density at 450 nm for Positive Control (1) and Negative Control (2) as well as for the Calibrator A and F complies with the respective range indicated on the Quality Control Certificate enclosed to each test kit ! If any of these criteria is not fulfilled, the results are invalid and the test should be repeated.

Calculation

Calculation of results

For Anti-TG IgG a 4-Parameter-Fit with lin-log coordinates for optical density and concentration is the data reduction method of choice.

Recommended Lin-Log Plot

First calculate the averaged optical densities for each calibrator well. Use lin-log graph paper and plot the averaged optical density of each calibrator versus the concentration. Draw the best fitting curve approximating the path of all calibrator points. The calibrator points may also be connected with straight line segments. The concentration of unknowns may then be estimated from the calibration curve by interpolation.

Calculation example

The figures below show typical results for anti-TG ELISA. These data are intended for illustration only and should not be used to calculate results from another run.

Calibrators									
No	Position	OD 1	OD 2	Mean	Conc. 1	Conc. 2	Mean	decl. Conc.	CV %
S1	A 1/A 2	0.028	0.029	0.028	1.7	1.7	1.7	0.0	0
S2	B 1/B 2	0.184	0.176	0.180	99	93	96	100	4
S3	C 1/C 2	0.452	0.433	0.443	318	300	309	300	4
S4	D 1/D 2	0.970	1.937	0.954	1016	955	986	1000	3
S5	E 1/E 2	1.571	1.555	1.563	3075	2979	3027	3000	1
S6	F 1/F 2	2.011	1.986	1.998	9370	8603	8986	9000	1

Interpretation Of Results

In a normal range study with 250 serum samples, regarding the 95 and 98 percentile values, the following ranges have been established with the Anti-TG test kit:

Anti-TG (IU/ml)	
normal:	< 100
borderline:	100 - 150
elevated:	≥ 150

Note: The quantitative assay system is calibrated against the WHO reference preparation 65/93 for anti-thyroglobulin antibodies. WHO 65/93 is measured as 1000 IU/ml anti-TG.

Precision

Statistics for coefficients of variation (CV) were calculated for each of three samples from the results of 24 determinations in a single run for Intra-Assay precision. Run-to-run precision was calculated from the results of 5 different runs with 6 determinations of each sample:

Intra-Assay		
Sample No	Mean [IU/ml]	CV [%]
1	746	2.6
2	1398	2.4
3	4674	5.0

Inter-Assay		
Sample No	Mean [IU/ml]	CV [%]
1	765	5.7
2	1500	2.3
3	5565	4.0

Sensitivity

The lower detection limit for Anti-TG ELISA was determined at 10 IU/ml.

Specificity

The microplate is coated with antigens, isolated from human thyroid tissue and highly purified by affinity chromatography. The Anti-TG test kit detects specifically IgG-class autoantibodies directed to the human thyroglobulin molecule.

Interferences

No interference has been observed with haemolytic (up to 1000 mg/dL), lipemic (up to 3 g/dL triglycerides) or bilirubin (up to 40 mg/dL) containing sera. Nor have any interfering effects been observed with the use of anticoagulants. However for practical reasons it is recommended that grossly hemolyzed or lipemic samples should be avoided.

Precautions

1. All reagents of this kit are strictly intended for research use only.
2. Do not interchange kit components from different lots. Do not use kit components beyond their expiration dates.
3. Have all reagents and samples ready before start of the assay. All materials must be at room temperature (20-28°C). Once started, the test must be performed without interruption to get the most reliable and consistent results.
4. Perform the assay steps only in the order indicated.
5. Always use fresh sample dilutions.
6. Pipette all reagents and samples into the bottom of the wells.
7. To avoid carryover contaminations change the tip between samples and different kit controls.
8. It is important to wash microwells thoroughly and remove the last droplets of wash buffer to achieve best results.
9. All incubation steps must be accurately timed.
10. Control sera or pools should routinely be assayed as unknowns to check performance of the reagents and the assay.
11. Do not re-use microplate wells.
12. For all controls, the respective concentrations are provided on the labels of each vial. Using these concentrations a calibration curve may be calculated.
13. Components containing human serum were tested and found negative for HBsAg, HCV, HIV 1 and HIV2 by FDA approved methods. No test can guarantee the absence of HBsAg, HCV, HIV 1 and HIV2 and so all human serum based reagents in this kit must be handled as though capable of transmitting infection.
14. Avoid contact with the TMB (3,3',5,5'-Tetramethyl-benzidine). If TMB comes into contact with skin, wash thoroughly with water and soap.
15. Avoid contact with the Stop Solution which is acid. If it comes into contact with skin, wash thoroughly with water and seek medical attention.
16. Some kit components (i.e. Controls, Sample buffer and Buffered Wash Solution) contain Sodium Azide as preservative. Sodium Azide (NaN_3) is highly toxic and reactive in pure form. At the product concentrations (0.09%), though not hazardous. Despite the classification as non-hazardous, we strongly recommend using prudent laboratory practices (see 18. 19. 20.).
17. Some kit components contain Proclin 300 as preservative. When disposing reagents containing Proclin 300, flush drains with copious amounts of water to dilute the components below active levels.
18. Wear disposable gloves while handling specimens or kit reagents and wash hands thoroughly afterwards.
19. Do not pipette by mouth.
20. Do not eat, drink, smoke or apply makeup in areas where specimens or kit reagents are handled.
21. Avoid contact between the buffered Peroxide Solution and easily oxidized materials; extreme temperature

may initiate spontaneous combustion.

During handling of all kit reagents, controls and serum samples observe the existing legal regulations.