Toxoplasma Gondii ELISA

For the qualitative and semi quantitative determination of IgA-class antibodies to Toxiplasma gondii in human serum and plasma.

Please read carefully due to Critical Changes, e.g., stability, storage, procedure and sample prep.

For Research Use Only. Not For Use In Diagnostic Procedures.

Catalog Number: 20-TGAHU-E01
Size: 96 wells
Version: 1.1 (28 Jan 16)
1. **Introduction**  

1.1 Intended Use  

The **Toxoplasma gondii IgA Enzyme Immunoassay Kit** provides materials for the qualitative and semiquantitative determination of IgA-class antibodies to Toxoplasma gondii in serum or plasma. This assay is intended for research use only.

2. **Principle of the test**  

The **Toxoplasma gondii IgA ELISA** Kit is a solid phase enzyme-linked immunosorbent assay (ELISA). Samples are diluted with Sample Diluent and additionally incubated with IgG-RF-Sorbent to eliminate competitive inhibition from specific IgG. Microtiter wells as a solid phase are coated with inactivated Toxoplasma gondii soluble antigen (strain RH). Diluted sample samples and ready-for-use controls are pipetted into these wells. During incubation Toxoplasma gondii specific antibodies of high samples and controls are bound to the immobilized antigens. After a washing step to remove unbound sample and control material horseradish peroxidase conjugated anti-human IgA antibodies are dispensed into the wells. During a second incubation this anti-IgA conjugate binds specifically to IgA antibodies resulting in the formation of enzyme-linked immune complexes. After a second washing step to remove unbound conjugate the immune complexes formed (in case of high samples) are detected by incubation with TMB substrate and development of a blue color. The blue color turns into yellow by stopping the enzymatic indicator reaction with sulfuric acid.  

The intensity of this color is directly proportional to the amount of Toxoplasma gondii-specific IgA antibody in the sample. Absorbance at 450 nm is read using an ELISA microtiter plate reader.

3. **Warnings and Precautions**  

- This kit is for research use only. For professional use only.  
- Before starting the assay, read the instructions completely and carefully. Use the valid version of the package insert provided with the kit. Be sure everything is understood.  
- All reagents of this test kit which contain human serum or plasma have been tested and confirmed negative for HIV I/II, HBsAg and HCV by FDA approved procedures. All reagents, however, should be treated as potential biohazards in use and for disposal.  
- Avoid contact with *Stop Solution* containing 0.2 mol/L \( \text{H}_2\text{SO}_4 \). It may cause skin irritation and burns.  
- TMB substrate has an irritant effect on skin mucosa. In case of possible contact, wash eyes with an abundant volume of water and skin with soap and abundant water. Wash contaminated objects before reusing them. If inhaled, take the person to fresh air.  
- The microplate contains snap-off strips. Unused wells must be stored at 2°C to 8°C in the sealed foil pouch and used in the frame provided.  
- Pipetting of samples and reagents must be done quickly as possible in the same sequence for each step.  
- Use reservoirs only for single reagents. This especially applies to the substrate reservoirs. Using a reservoir for dispensing a substrate solution that had previously been used for the conjugate solution may turn solution colored. Do not pour reagents back into vails as reagent contamination may occur.  
- Mix the contents of the microplate wells thoroughly to ensure good assay results. Do not reuse microwells.  
- Do not let wells dry during the assay; add reagents immediately after completing the rinse steps.  
- Allow the reagents to reach room temperature (21°C to 26°C) before starting the test. Temperature will affect the absorbance readings of the assay. However, values for samples will not be affected.  
- Never pipette by mouth and avoid contact of reagents and samples with skin and mucous membranes.  
- Do not smoke, eat, drink or apply cosmetics in areas where specimens or kit reagents are handled.  
- Wear disposable latex gloves when handling specimens and reagents. Microbial contamination of reagents or samples may give inaccurate results.
• Handling should be in accordance with the procedures defined by an appropriate national biohazard safety guideline or regulation.
• Do not use reagents beyond expiry date as shown on the kit labels.
• All indicated volumes have to be performed according to the protocol. Optimal test results are only obtained when using calibrated pipettes and microtiter plate readers.
• Do not mix or use components from kits with different lot numbers. It is advised not to exchange wells of different plates even of the same lot. The kits may have been shipped or stored under different conditions and the binding characteristics of the plates may result slightly different.
• Chemicals and prepared or used reagents have to be treated as hazardous waste according the national biohazard safety guideline or regulation.
• For information on hazardous substances included in the kit please refer to Material Safety Data Sheets. Material Safety Data Sheets for this product are available upon request directly from

4. Reagents

4.1 Reagents provided

1. Microtiterwells, 12 x 8 (break apart) strips, 96 wells; Wells coated with inactivated Toxoplasma gondii soluble antigen (strain RH). (incl. 1 strip holder and 1 cover foil)
2. Sample Diluent *, 1 vial, 100 mL, ready to use, colored yellow; pH 7.2 ± 0.2.
3. IgG-RF-Sorbent *, 1 vial, 6.5 mL, ready to use, colored yellow; Contains anti-human IgG-class antibody.
4. Positive Control *, 1 vial, 1.0 mL, ready to use; colored yellow, red cap.
5. Negative Control *, 1 vial, 2.0 mL, ready to use; colored yellow, yellow cap.
6. Cut off Control *, 1 vial, 2.0 mL, ready to use; colored yellow, black cap.
7. Enzyme Conjugate *, 1 vial, 20 mL, ready to use, colored red, antibody to human IgA conjugated to horseradish peroxidase.
8. Substrate Solution, 1 vial, 14 mL, ready to use, Tetramethylbenzidine (TMB).
9. Stop Solution, 1 vial, 14 mL, ready to use, contains 0.2 mol/l H2SO4.
Avoid contact with the stop solution. It may cause skin irritations and burns.
10. Wash Solution *, 1 vial, 30 mL (20X concentrated for 600 mL), pH 6.5 ± 0.1 see “Preparation of Reagents”.
* contains non-mercury preservative

4.1.1 Material required but not provided

• A microtiter plate calibrated reader (450/620nm ±10 nm)
• Calibrated variable precision micropipettes
• Incubator 37 °C
• Manual or automatic equipment for rinsing wells
• Vortex tube mixer
• Deionized or (freshly) distilled water
• Timer
• Absorbent paper

4.2 Storage Conditions

When stored at 2 °C to 8 °C unopened reagents will retain reactivity until expiration date. Do not use reagents beyond this date. Opened reagents must be stored at 2 °C to 8 °C. Microtiter wells must be stored at 2 °C to 8 °C. Once the foil bag has been opened, care should be taken to close it tightly again. Opened kits retain activity for two months if stored as described above.
4.3. Preparation of Reagents
Allow all reagents and required number of strips to reach room temperature prior to use.

Wash Solution
Dilute Wash Solution 1+19 (e.g. 10 mL + 190 mL) with fresh and germ free redistilled water. This diluted wash solution has a pH value of 7.2 ± 0.2.
Consumption: ~ 5 mL per determination.
Crystals in the solution disappear by warming up to 37 °C in a water bath. Be sure that the crystals are completely dissolved before use. The diluted Wash Solution is stable for 4 weeks at 2 °C to 8 °C.

4.4 Disposal of the Kit
The disposal of the kit must be made according to the national regulations. Special information for this product is given in the Material Safety Data Sheets.

4.5 Damaged Test Kits
In case of any severe damage to the test kit or components, ALPCO has to be informed in writing, at the latest, one week after receiving the kit. Severely damaged single components should not be used for a test run. They have to be stored until a final solution has been found. After this, they should be disposed according to the official regulations.

5. SAMPLE
Serum or plasma can be used in this assay.
Do not use hemolytic, icteric or lipemic specimens.

5.1 Sample Collection
Serum:
Collect blood by venipuncture (e.g. Sarstedt Monovette for serum), allow to clot, and separate serum by centrifugation at room temperature. Do not centrifuge before complete clotting has occurred. Samples containing anticoagulant may require increased clotting time.

Plasma:
Whole Blood should be collected into centrifuge tubes containing anticoagulant (e.g. Sarstedt Monovette with the appropriate plasma preparation) and centrifuged immediately after collection.

5.2 Sample Storage and Preparation
Samples should be capped and may be stored for up to 3 days at 2 °C to 8 °C prior to assaying.
Samples held for a longer time should be frozen only once at –20 °C prior to assay. Thawed samples should be inverted several times prior to testing.

5.3 Sample Dilution
Prior to assaying each sample is first to be diluted with Sample Diluent. For the absorption of rheumatoid factor these prediluted samples then have to be incubated with IgG-RF-Sorbent
1. Dilute each sample 1+50 with Sample Diluent:
   e.g. 10 µL of sample + 0.5 mL of Sample Diluent. Mix well.
2. Dilute this prediluted sample 1+1 with IgG-RF-Sorbent
   e.g. 60 µL prediluted sample + 60 µL IgG-RF-Sorbent. Mix well
3. Let stand for at least 15 minutes at room temperature, mix well or overnight at 2°C – 8°C and mix well again.
4. Take 100 µL of these pretreated samples for the ELISA.

Please note: Controls are ready for use and must not be diluted!
6. Assay Procedure

6.1 General Remarks

- It is very important to bring all reagents, samples and controls to room temperature before starting the test run!
- Once the test has been started, all steps should be completed without interruption.
- Use new disposal plastic pipette tips for each standard, control or sample in order to avoid cross contamination.
- Absorbance is a function of the incubation time and temperature. Before starting the assay, it is recommended that all reagents are ready, caps removed, all needed wells secured in holder, etc. This will ensure equal elapsed time for each pipetting step without interruption.
- As a general rule the enzymatic reaction is linearly proportional to time and temperature.
- Close reagent vials tightly immediately after use to avoid evaporation and microbial contamination.
- To avoid cross-contamination and falsely elevated results pipette samples and dispense conjugate without splashing accurately to the bottom of wells.
- During 37°C incubation, cover microtiter strips with foil to avoid evaporation.

6.2 Assay Procedure

Prior to commencing the assay, dilute Wash Solution, prepare samples as described in point 5.3, mix well before pipette and establish carefully the distribution and identification plan supplied in the kit for all samples and controls.

1. Select the required number of microtiter strips or wells and insert them into the holder.

Please allocate at least:

1 well (e.g. A1) for the substrate blank,
1 well (e.g. B1) for the Negative Control,
2 wells (e.g. C1+D1) for the Cut off Control and
1 well (e.g. E1) for the Positive Control.

It is left to the user to determine controls and samples in duplicate.

2. Dispense

100 µL of Negative Control into well B1
100 µL of Cut-off Control into wells C1 and D1
100 µL of Positive Control into well E1 and
100 µL of each diluted sample with new disposable tips into appropriate wells.

Leave well A1 for substrate blank!

3. Cover wells with foil supplied in the kit. Incubate at for 60 minutes at 37°C.

4. Briskly shake out the contents of the wells.

Rinse the wells 5 times with diluted Wash Solution (300 µL per well). Strike the wells sharply on absorbent paper to remove residual droplets.

Important note:
The sensitivity and precision of this assay is markedly influenced by the correct performance of the washing procedure!

5. Dispense 100 µL Enzyme Conjugate into each well, except A1.

6. Cover wells with foil. Incubate for 30 minutes at room temperature (20 °C to 25 °C). Do not expose to direct sunlight!

7. Briskly shake out the contents of the wells.

Rinse the wells 5 times with diluted Wash Solution (300 µL per well). Strike the wells sharply on absorbent paper to remove residual droplets.
8. Add **100 µL** of *Substrate Solution* into all wells.

9. Cover wells with foil. Incubate for **exactly 15 minutes** at room temperature (20 °C to 25 °C) in the dark.

10. Stop the enzymatic reaction by adding **100 µL** of *Stop Solution* to each well. Any blue color developed during the incubation turns into yellow.
   **Note:** High samples can cause dark precipitates of the chromogen!

11. Read the optical density at **450/620 nm** with a microtiter plate reader within **30 minutes** after adding the *Stop Solution*.

6.3 Measurement

Adjust the ELISA microplate or microstrip reader to **zero** using the *substrate blank in well A1*.

If - due to technical reasons - the ELISA reader cannot be adjusted to zero using the substrate blank in well A1, subtract the absorbance value of well A1 from all other absorbance values measured in order to obtain reliable results!

**Measure the absorbance** of all wells at **450 nm** and record the absorbance values for each control and sample in the distribution and identification plan.

Dual wavelength reading using **620 nm** as reference wavelength is recommended.

Where applicable **calculate the mean absorbance values** of all duplicates.

7. Quality Control

It is recommended to use control samples according to state and federal regulations. The use on control samples is advised to assure the day to day validity of the assay. It is also recommended to make use of national or international Quality Assessment programs in order to ensure the accuracy of results.

If the results of the assay do not fit to the established acceptable ranges of control materials, values should be considered invalid.

In this case, please check the following technical areas: Pipetting and timing devices; photometer, expiration dates of reagents, storage and incubation conditions, aspiration, and washing methods.

After checking the above mentioned items without finding any error contact ALPCO.

8. Assay Characteristics

8.1 Assay Dynamic Range

The range of the assay is between 0.45-60 DU/mL.

8.2 Cross Reactivity

No cross reactivity was found for *E.histolytica*, *G.lamblia*, *Schstosoma*, *Toxocara*, *Stringyloides*, and *Echinococcus*.

8.3 Method Comparison

The *Toxoplasma gondii* IgA ELISA was compared with another *Toxoplasma* IgA ELISA (Bioquant).

78 serum samples were assayed.

<table>
<thead>
<tr>
<th>n =78</th>
<th>Other ELISA</th>
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<tbody>
<tr>
<td>ELISA Lot 1</td>
<td>High</td>
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<tr>
<td>High</td>
<td>27</td>
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<tr>
<td>Low</td>
<td>0</td>
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Agreement: 100%
9. Limitations of Use
Bacterial contamination or repeated freeze-thaw cycles of the samples may affect the absorbance values.

9.1 Interfering Substances
Hemoglobin (up to 4 mg/ml), Bilirubin (up to 0.5mg/ml) and Triglyceride (up to 30mg/ml) have no influence on the assay results.

10. Legal Aspects
10.1 Reliability of Results
The test must be performed exactly as per the manufacturer’s instructions for use. Moreover the user must strictly adhere to the rules of GLP (Good Laboratory Practice) or other applicable national standards and/or laws. This is especially relevant for the use of control reagents. It is important to always include, within the test procedure, a sufficient number of controls for validating the accuracy and precision of the test.

The test results are valid only if all controls are within the specified ranges and if all other test parameters are also within the given assay specifications. In case of any doubt or concern please contact ALPCO.

10.2 Liability

Any modification of the test kit and/or exchange or mixture of any components of different lots from one test kit to another could negatively affect the intended results and validity of the overall test. Such modification and/or exchanges invalidate any claim for replacement.
Claims submitted due to customer misinterpretation of laboratory results subject are also invalid. Regardless, in the event of any claim, the manufacturer’s liability is not to exceed the value of the test kit. Any damage caused to the test kit during transportation is not subject to the liability of the manufacturer.

REFERENCES
M.H. Beaman, R.E. McCabe, S-Y. Wong, J.S. Remington, Toxoplasma gondii, Inc: Principles and Practice of Infectious Diseases
### Short Instructions for Use

<table>
<thead>
<tr>
<th>Step</th>
<th>Instructions</th>
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<tbody>
<tr>
<td>1.</td>
<td>All reagents and specimens must be allowed to come to room temperature (18-25°C) before use. Leave well A1 for substrate Blank. Dispense 100 µl of Controls into appropriate wells.</td>
</tr>
<tr>
<td>2.</td>
<td>Dispense 100 µl of sample into selected wells. <em>(Please note special sample treatment, point 5.3!)</em></td>
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<tr>
<td>3.</td>
<td>Cover wells with foil. Incubate for <strong>60 minutes</strong> at 37°C.</td>
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<tr>
<td>4.</td>
<td>Briskly shake out the contents of the wells.</td>
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<tr>
<td>5.</td>
<td>Rinse the wells 5 times with diluted Wash Solution (300 µl per well). Strike the wells sharply on absorbent paper to remove residual droplets.</td>
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<tr>
<td>6.</td>
<td>Dispense 100 µl of Enzyme-Conjugate into each well.</td>
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<tr>
<td>7.</td>
<td>Incubate for <strong>30 minutes</strong> at room temperature.</td>
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<tr>
<td><img src="#" alt="Image" /></td>
<td>Add 100 µl of Substrate Solution to each well.</td>
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<td><img src="#" alt="Image" /></td>
<td>Incubate for <strong>15 minutes</strong> at room temperature.</td>
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<tr>
<td><img src="#" alt="Image" /></td>
<td>Stop the reaction by adding 100 µl of Stop Solution to each well.</td>
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<td><img src="#" alt="Image" /></td>
<td>Determine the absorbance of each well at 450 nm.</td>
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