



Toxoplasma ELISA Kit

Enzyme Immunoassay for the determination of Toxoplasma antibody in dog and cat serum.

Catalog number: ARG83080

Package: 96 wells

For research use only. Not for use in diagnostic procedures.

TABLE OF CONTENTS

SECTION	Page
INTRODUCTION	3
PRINCIPLE OF THE ASSAY	3
MATERIALS PROVIDED & STORAGE INFORMATION.....	4
MATERIALS REQUIRED BUT NOT PROVIDED.....	4
TECHNICAL HINTS AND PRECAUTIONS	5
SAMPLE COLLECTION & STORAGE INFORMATION	6
REAGENT PREPARATION	6
ASSAY PROCEDURE	6
CALCULATION OF RESULTS.....	8
QUALITY ASSURANCE	9

MANUFACTURED BY:

Arigo Biolaboratories Corporation

Address: No. 22, Ln. 227, Gongyuan Rd., Hsinchu City 300, Taiwan

Phone: +886 (3) 562 1738

Fax: +886 (3) 561 3008

Email: info@arigobio.com

INTRODUCTION

Toxoplasma gondii is an obligate intracellular parasitic protozoan (specifically an apicomplexan) that causes toxoplasmosis. Found worldwide, *T. gondii* is capable of infecting virtually all warm-blooded animals, but felids are the only known definitive hosts in which the parasite may undergo sexual reproduction. In rodents, *T. gondii* has been shown to alter behavior in ways that increase the rodents' chances of being preyed upon by felids. Support for this "manipulation hypothesis" stems from studies showing that *T. gondii*-infected rats have a decreased aversion to cat urine while infection in mice lowers general anxiety, increases explorative behaviors and increases a loss of aversion to predators in general. Because cats are the only hosts within which *T. gondii* can sexually reproduce, such behavioral manipulations are thought to be evolutionary adaptations that increase the parasite's reproductive success since rodents that do not avoid cat habitations will more likely become cat prey. The primary mechanisms of *T. gondii*-induced behavioral changes in rodents occur through epigenetic remodeling in neurons that govern the relevant behaviors.

PRINCIPLE OF THE ASSAY

This assay employs the qualitative enzyme immunoassay technique. A specific *Toxoplasma* antigen has been pre-coated onto a microtiter plate. Standards or samples are pipetted into the wells and any *Toxoplasma* antibody present is bound by the immobilized antibody. After washing away any unbound substances, an HRP-conjugated antibody is added to each well and incubated. Following the washing of any unbound antibody-enzyme reagent, a substrate solution (TMB) is added to the wells and color develops in proportion to the

Toxoplasma ELISA Kit ARG83080

amount of antigen-antibody binding in the initial step. The color development is stopped by the addition of acid and the intensity of the color is measured at a wavelength of 450nm \pm 2nm.

MATERIALS PROVIDED & STORAGE INFORMATION

Store the unopened kit at 2-8 °C. Use the kit before expiration date.

Component	Quantity	Storage information
Antigen-coated microplate	8 X 12 strips	4°C. Unused strips should be sealed tightly in the air-tight pouch.
Standard A-D (0, 50, 100, 200 IU/ml)	5 X 2ml (Ready-to-use)	4°C
HRP-Streptavidin solution	20 ml (Ready-to-use)	4°C
Sample Diluent Buffer	100 ml (Ready-to-use)	4°C
20X Wash Buffer	50 ml	4°C
TMB Substrate	15 ml (Ready-to-use)	4°C (Protect from light)
STOP Solution	15 ml (Ready-to-use)	4°C
Plate sealer	1 e.a.	Room temperature

MATERIALS REQUIRED BUT NOT PROVIDED

- Microplate reader capable of measuring absorbance at 450nm (Optional: 620 nm as reference wavelength)
- Pipettes and pipette tips
- Deionized or distilled water
- 37°C oven or incubator
- Automated microplate washer (optional)

TECHNICAL HINTS AND PRECAUTIONS

- Wear protective gloves, clothing, eye, and face protection especially while handling blood or body fluid samples.
- Store the kit at 4°C at all times and do not use after the expiry date.
- It is very important to bring all reagents and samples to room temperature (20-25°C) and mix them before starting the test run.
- Unused strips should be resealed in the aluminium foil along with the desiccant supplied and stored at 2-8 °C.
- If crystals are observed in the 20X Wash buffer, warm to RT or 37°C until the crystals are completely dissolved. Mix well before dilution.
- The TMB Color developing agent should be colorless (or could have a slight blue tinge) and transparent before using.
- Ensure complete reconstitution and dilution of reagents prior to use.
- All reagents should be mixed by gentle inversion or swirling prior to use. Do not induce foaming.
- Before using the kit, spin tubes and bring down all components to the bottom of tubes.
- All materials should be equilibrated to room temperature (RT; 20-25°C) before use.
- It is highly recommended that the standards, samples and controls be assayed in duplicates.
- Perform all assay steps in the order given and without any delays.
- Change pipette tips between the addition of different reagent or samples.
- For further internal quality control each laboratory should additionally use known samples.

SAMPLE COLLECTION & STORAGE INFORMATION

The sample collection and storage conditions listed below are intended as general guidelines. Sample stability has not been evaluated.

Serum- Use a serum separator tube (SST) and allow samples to clot for 30 minutes before centrifugation for 15 minutes at 1000 x g. Collect serum and assay immediately or aliquot and store samples at -20 or -70°C. Avoid repeated freeze-thaw cycles.

REAGENT PREPARATION

- **1X Wash buffer:** Dilute **20X** Wash buffer into **distilled water** to yield 1X Wash buffer. (e.g. 10 ml of 20X Wash buffer +190 ml of distilled water). Mix thoroughly by Use a magnetic stirrer. The diluted 1X wash buffer is stable for 5 days at room temperature (20-25 °C).
- **Patient sample:** Dilute patient sample **1:101** with **Sample Diluent buffer** before assay, mix well. (e.g. 5 µl of serum + 500 µl of Sample Diluent buffer)

Note: The controls are ready-to-use and need not further dilution.

ASSAY PROCEDURE

All materials should be equilibrated to room temperature (RT, 20-25 °C) before use. Standards, samples and controls should be assayed in duplicates.

1. Remove excess microplate strips from the plate frame, return them to the foil pouch containing the desiccant pack, and reseal it.
2. Add **100 µl** of **controls, diluted samples (1:101)** into wells. Leave one well empty for the Substrate Blank. Cover the wells and incubate for **1h at 37°C**.

Toxoplasma ELISA Kit ARG83080

3. Aspirate each well and wash, repeating the process 2 times for a **total 3 washes** (for automatic systems wash the wells for a total 5 washes). Wash by filling each well with **1× Wash Buffer (300 µl)** using a squirt bottle, manifold dispenser, or autowasher. Avoid overflows from the reaction wells. Keep the wash buffer in the wells for **> 5 sec** before removal. Complete removal of liquid at each is essential to good performance. After the last wash, remove any remaining Wash Buffer by aspirating, decanting or blotting against clean paper towels.

Note: If performing the test on ELISA automatic systems we recommend increasing the washing steps from **three** up to **five** and the volume of Washing Buffer from **300 µL** to **350 µL** to avoid washing effects.

4. Add **100 µl** of **HRP-conjugated antibody** into each well (except for the Substrate Blank well). Cover wells and incubate for **30 minutes at RT**. (Do not expose to direct sunlight)
5. Aspirate each well and **wash as step 3**.
6. Add **100 µl** of **TMB Substrate Reagent** to each well. Incubate for **15 minutes** at **room temperature** in dark. A blue color occurs due to an enzymatic reaction.
7. Add **100 µl** of **Stop Solution** to each well. The color of the solution should change from blue to yellow.
8. Read the OD with a microplate reader at **450 nm** (and reference filter **620 nm**) immediately. It is recommended read the absorbance within 30 minutes after adding the stop solution.

CALCULATION OF RESULTS

1. Calculate the average absorbance values for each set of standards, controls and patient samples.
2. Adjust the ELISA Microtiterplate reader to zero using the Substrate Blank.
3. Bichromatic measurement using a reference wavelength of 620 nm is recommended.
4. In order for an assay to be considered valid, the following criteria must be met:

Standard A: Absorbance value < **0.200**

Standard B: Absorbance value > **0.300**

Standard C: Absorbance value **0.150- 1.300**

Standard D: Absorbance value > **1.000**

If these criteria are not met, the test is not valid and must be repeated.

5. Interpretation of results:

Normal value ranges for this ELISA should be established by each laboratory based on its own sample populations in the geographical areas serviced. Summary:

Positive	> 55 IU/ml	Antibodies against the pathogen are present. There has been a contact with the antigen.
Equivocal	50~55 IU/ml	Antibodies against the pathogen could not be detected clearly. It is recommended to repeat the test with a fresh sample in 2 to 4 weeks. If the result is equivocal again the sample is judged as negative.
Negative	< 50 IU/ml	The sample contains no antibodies against the pathogen. A previous contact with the antigen (pathogen resp. vaccine) is unlikely.

QUALITY ASSURANCE

Intra-assay and Inter-assay precision

The CV values of intra-assay precision is 2.55% and inter-assay precision is 7.67%.

Diagnostic Specificity

The diagnostic specificity is defined as the probability of the assay of scoring negative in the absence of the specific analytic.

It is >98% on dog (95% confidence interval: 80.49%-100%).

It is 91.18% on cat (95% confidence interval: 76.32%-100%).

Diagnostic Sensitivity

The diagnostic sensitivity is defined as the probability of the assay of scoring positive in the presence of the specific analytic.

It is 88.89% on dog (95% confidence interval: 87.23%- 100%)

It is 90.32% on dog (95% confidence interval: 74.25%- 100%)

Cross Reactivity

Cross-reactions cannot be excluded.

Interferences

Interferences are not significant interference effect observed up to concentration of 10 mg/mL hemoglobin, 5 mg/mL triglycerides and 0.5 mg/mL bilirubin.