# MAGLUMI Toxo IgG (CLIA)

REF 130212001M Σ 100


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CE 0123

**FOR PROFESSIONAL USE ONLY**
Store at 2...8 °C

COMPLETELY READ THE INSTRUCTIONS BEFORE PROCEEDING

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**SYMBOLS EXPLANATIONS**

| | |
|---|---|
| EC REP | Authorized Representative in Europe |
| | Manufacturer |
| | Attention. See Instructions For Use |
| CONT | Contents of kit |
| IVD | In vitro diagnostic medical device (In vitro diagnostic use) |
| LOT | Lot number |
| REF | Catalogue Code |
| | Expiry date (Use by…) |
| 8°C 2°C | Temperature limitation ( store at 2...8 °C) |
| Σ | Number of tests |
| | Keep away from sunlight |
| | Keep upright |

## INTENDED USE

The kit has been designed for the qualitative determination of Toxo IgG in human serum.
The method can be used for samples over the range of 0-30 AU/ml.
The test has to be performed on the MAGLUMI chemiluminescence immunoassay (CLIA) fully auto analyzer (Including MAGLUMI 1000, MAGLUMI 2000, MAGLUMI 2000 Plus and new developed models).

## SUMMARY AND EXPLANATION OF THE TEST

Toxoplasmosis is a quite widespread infectious disease caused by an intracellular protozoan parasite, called Toxoplasma gondii. The disease, affecting both man and warm-blooded animals, can be transmitted by ingestion of food infected or contaminated by oocysts; direct contagion from domestic animals; or transplacental infection.
Transmission of Toxoplasma through blood transfusions or organ transplantation has also been reported in the literature.
In the normal adult population, toxoplasmosis has a generally benign course, being largely asymptomatic; sometimes mildly symptomatic (headache, sore throat, asthenia); or in rare cases accompanied by lymphadenitis. Exceptionally, severer disorders may be present, like myocarditis, hepatitis, pneumonia, meningo -encephalitis and retinochoroiditis. The prevalence of positive serological tests increases with age, indicating past exposure.
Cell-mediated immunity is generally involved in protecting from parasite infection. As a consequence, a symptomatic course is generally more frequent in patients undergoing immuno -suppressive therapy, either to prevent organ rejection or as an anti-tumor therapy. Toxoplasmic encephalitis has proved to be a significant cause of death in patients with acquired immunodeficiency syndrome.
If the infection occurs in pregnant women, toxoplasmosis can cause a threat to the foetus with possible spontaneous abortion, prematurity or stillbirth, as the pathogen can be transmitted to the foetus via the placenta. The foetus whose mother is exposed to Toxoplasma infection during the first trimester of pregnancy develops severe lesions to the central nervous system that generally lead to foetal demise. Toxoplasma infection acquired during the second trimester may cause hydrocephalus, mental and psychomotor retardation, blindness and cerebral calcifications. Toxoplasma infection, however, is commonest during the third trimester, causing retinochoroiditis and other ocular lesions, lesions to the central nervous system and latent asymptomatic infection which may eventually develop into full-blown disease.
Specific IgM antibodies to Toxoplasma develop two to four weeks after the onset of clinical signs and gradually decline thereafter, disappearing in three to nine months. Therefore, the presence of IgM and IgA in the absence of IgG or in the presence of low IgG levels is a strong evidence of acute toxoplasmosis. Conversely, the presence of IgM in the presence of decreasing or constant IgG levels indicates subacute infection.
The differential diagnosis of acute toxoplasmosis made possible by the specific IgM assay allows adequate treatment which reduces the risks of the disease both in immunocompromized patients and in pregnant women.
Specific IgG antibodies to Toxoplasma rise gradually and peak two to five months after the onset of clinical signs. Therefore, the presence of IgG is useful in distinguishing subjects who have acquired the disease from those who have not. This is particularly important in order to adopt suitable prophylaxis in susceptible women of child-bearing age.

## PRINCIPLE OF THE TEST

Indirect immunoluminometric assay:

Mouse anti-human IgG is used to label ABEI, and use purified Toxo antigen to coat nano magnetic microbeads. Sample, Calibrator or Control with Buffer and nano magnetic microbeads coated with Toxo antigen are mixed thoroughly and incubated at 37 ℃ and cycle washing for 1 time. Then add ABEI Label, incubation and form a sandwich, then washing for the 2nd time. Subsequently, the starter reagents are added and a flash chemiluminescent reaction is initiated. The light signal is measured by a photomultiplier as RLU within 3 seconds and is proportional to the concentration of Toxo IgG present in controls or samples.

## KIT COMPONENTS

| Reagent Integral for 100 determinations | |
|---|---|
| **Nano magnetic microbeads:** TRIS buffer, 1.2% (W/V), 0.2%$NaN_3$, coated with Toxo antigen | 2.5ml |
| **Calibrator Low:** bovine serum, 0.2%$NaN_3$. | 2.5ml |
| **Calibrator High:** bovine serum, 0.2%$NaN_3$ | 2.5ml |
| **Buffer:** sheep anti-human IgA, sheep anti-human IgM containing BSA, 0.2%$NaN_3$. | 12.5ml |
| **ABEI Label:** Mouse anti-human IgG labeled ABEI contains BSA, 0.2%$NaN_3$ | 22.5ml |
| **Diluent:** sheep anti-human IgA, sheep anti-human IgM containing BSA, 0.2%$NaN_3$. | 25ml |
| All reagents are provided ready-to-use. | |

**Material Supplies**

Please prepare 0.9% sodium chloride solution in case of insufficient diluents.

| Reagent Vials in kit box | |
|---|---|
| **Internal Quality Control:** containing BSA, 0.2%$NaN_3$. (target value refer to Quality Control Information date sheet) | 2.0ml |

| | |
|---|---|
| MAGLUMI Reaction Module | REF: 630003 |
| MAGLUMI Starter 1+2 | REF: 130299004M |
| MAGLUMI Wash Concentrate | REF: 130299005M |
| MAGLUMI Light Check | REF: 130299006M |

**Accessories Required But Not Provided**

**Preparation of the Reagent Integral**

Before the sealing is removed, gentle and careful horizontal shaking of the Reagent Integral is essential (avoid foam formation!) Remove the sealing and turn the small wheel of the magnetic microbeads compartment to and fro, until the colour of the suspension has changed into brown. Place the Integral into the reagent area and let it stand there for 30 min. During this time, the magnetic microbeads are automatically agitated and completely resuspended.

***Do not interchange integral component from different reagents or lots!***

**Storage and Stability**

- Sealed: Stored at 2-8 ℃ until the expiry date.
- Opened: Stable for 4 weeks. To ensure the best kit performance, it is recommended to place opened kits in the refrigerator if it's not going to be used on board during the next 12 hours.

- Keep upright for storage.
- Keep away from direct sunlight.

## CALIBRATION AND TRACEABILITY

**1)Traceability**

To perform an accurate calibration, we have provided the test calibrators standardized against the SNIBE internal reference substance.

Calibrators in the Reagent Kit are from Fitzgerald.

**2) 2-Point Recalibration**

Via the measurement of calibrators, the predefined master curve is adjusted (recalibrated) to a new, instrument-specific measurement level with each calibration.

**3) Frequency of Recalibration**

- After each exchange of lots (Reagent Integral or Starter Reagents).
- Every 4 weeks and/or each time a new Integral is used (recommendation).
- After each servicing of the MAGLUMI Fully Auto analyzer.
- If controls are beyond the expected range.

## SPECIMEN COLLECTION AND PREPARATION

Sample material: serum

Collect samples using standard procedures.

Store at 2-8 ℃: 24 hours, for lo below - 20 ℃

Avoid repeated freezing and thawing cycles, stored samples should be thoroughly mixed prior to use (Vortex mixer).

Please ask local representative of SNIBE for more details if you have any doubt.

**Vacuum Tubes**

(a) Blank tubes are recommended type for collecting samples.

(b) Please ask SNIBE for advice if special additive must be used in sample collecting.

**Specimen Conditions**

- Do not use specimens with the following conditions:
  (a) heat-inactivated specimens;
  (b) Cadaver specimens or body fluids other than human serum;
  (c) Obvious microbial contamination.
- Use caution when handling patient specimens to prevent cross contamination. Use of disposable pipettes or pipette tips is recommended.
- Inspect all samples for bubbles. Remove bubbles with an applicator stick prior to analysis. Use a new applicator stick for each sample to prevent cross contamination.
- Serum specimens should be free of fibrin, red blood cells or other particulate matter.
- Ensure that complete clot formation in serum specimens has taken place prior to centrifugation. Some specimens, especially those from patients receiving anticoagulant or thrombolytic therapy, may exhibit increased clotting time. If the specimen is centrifuged before a complete clot forms, the presence of fibrin may cause erroneous results.

**Preparation for Analysis**

- Patient specimens with a cloudy or turbid appearance must be centrifuged prior to testing. Following centrifugation, avoid the lipid layer (if present) when pipetting the specimen into a sample cup or secondary tube.
- Specimens must be mixed **thoroughly** after thawing by **low** speed vortexing or by gently inverting, and centrifuged prior to

use to remove red blood cells or particulate matter to ensure consistency in the results. Multiple freeze-thaw cycles of specimens should be avoided.

- All samples (patient specimens or controls) should be tested within 3 hours of being placed on board the MAGLUMI System. Refer to the SNIBE service for a more detailed discussion of onboard sample storage constraints.

**Storage**

- If testing will be delayed for more than 8 hours, remove serum from the serum separator, red blood cells or clot. Specimens removed from the separator gel, cells or clot may be stored up to 24 hours at 2-8°C.
- Specimens can be stored up to 30 days frozen at -20°C or colder.

**Shipping**

- Before shipping specimens, it is recommended that specimens be removed from the serum or plasma separator, red blood cells or clot. When shipped, specimens must be packaged and labeled in compliance with applicable state, federal and international regulations covering the transport of clinical specimens and infectious substances. Specimens must be shipped frozen (dry ice). Do not exceed the storage time limitations identified in this section of the package insert.

## WARNING AND PRECAUTIONS FOR USERS

IVD

- For use in *IN-VITRO* diagnostic procedures only.
- Package insert instructions must be carefully followed. Reliability of assay results cannot be guaranteed if there are any deviations from the instructions in this package insert.

**Safety Precautions**

**CAUTION:** This product requires the handling of human specimens.

- The calibrators in this kit are prepared from bovine serum products. However, because no test method can offer complete assurance that HIV, Hepatitis B Virus or other infectious agents are absent; these reagents should be considered a potential biohazard and handled with the same precautions as applied to any serum or plasma specimen.
- All samples, biological reagents and materials used in the assay must be considered potentially able to transmit infectious agents. They should therefore be disposed of in accordance with the prevailing regulations and guidelines of the agencies holding jurisdiction over the laboratory, and the regulations of each country. Disposable materials must be incinerated; liquid waste must be decontaminated with sodium hypochlorite at a final concentration of 5% for at least half an hour. Any materials to be reused must be autoclaved using an overkill approach (USP 24, 2000, p.2143). A minimum of one hour at 121 ℃ is usually considered adequate, though the users must check the effectiveness of their decontamination cycle by initially validating it and routinely using biological indicators.
- It is recommended that all human sourced materials be considered potentially infectious and handled in accordance with the OSHA Standard on Bloodborne Pathogens 13. Biosafety Level 214 or other appropriate biosafety practices should be used for materials that contain or are suspected of containing infectious agents.
- This product contains Sodium Azide; this material and its container must be disposed of in a safe way.
- Safety data sheets are available on request.

**Handling Precautions**

- Do not use reagent kits beyond the expiration date.
- Do not mix reagents from different reagent kits.
- Prior to loading the Reagent Kit on the system for the first time, the microbeads requires mixing to re-suspend microbeads that have settled during shipment.
- For microbeads mixing instructions, refer to the KIT COMPONENTS, Preparation of the Reagent Integral section of this package insert.
- To avoid contamination, wear clean gloves when operating with a reagent kit and sample.
- Over time, residual liquids may dry on the kit surface, please pay attention the silicon film still exists on the surface of the kit.
- For a detailed discussion of handling precautions during system operation, refer to the SNIBE service information.

## TEST PROCEDURE

To ensure proper test performance, strictly adhere to the operating instructions of the MAGLUMI Fully Auto analyzer. Each test parameter is identified via a RFID tag on the Reagent Integral. For further information please refer to the MAGLUMI Chemiluminescence Analyzer Operating Instructions.

| | |
|---|---|
| Auto dilution<br>20μl<br>+200μl | 1:11<br>Sample<br>Diluent |
| 20μl<br>+100μl<br>+20μl | Diluted Sample, calibrator or controls<br>Buffer<br>Nano magnetic microbeads |
| 10 min | Incubation |
| 400μl | Cycle washing |
| +200μl | ABEI Label |
| 10 min | Incubation |
| 400μl | Cycle washing |
| 3 s | Measurement |

* In case of lacking diluent, user can prepare 0.9% sodium chloride solution as additional diluent.

## DILUTION

Samples with concentrations above the measuring range can be diluted. After manual dilution, multiply the result by the dilution factor. After dilution by the analyzers, the analyzer software automatically takes the dilution into account when calculating the sample concentration.

Availability of sample dilution by analyzer please refers to the MAGLUMI analyzer user software program. Dilution settings please follow MALGUMI analyzer operating instructions.

## QUALITY CONTROL

- Observe quality control guidelines for medical laboratories
- Use suitable controls for in-house quality control. Controls should be run at least once every 24 hours when the test is in use, once per reagent kit and after every calibration. The control intervals should be adapted to each laboratory's individual requirements. Values obtained should fall within the defined ranges. Each laboratory should establish guidelines for corrective measures to be taken if values fall outside the range.

## LIMITATIONS OF THE PROCEDURE

**1) Limitations**

Use Toxo IgG value as a kind of auxiliary material for other testing data when in diagnosis. Assay results should be utilized in conjunction with other clinical and laboratory data to assist the clinician in making individual patient management decisions.

A skillful technique and strict adherence to the instructions are necessary to obtain reliable results. Bacterial contamination of samples or repeated freeze-thaw cycles may affect the test results. Assay results should be utilized in conjunction with other clinical

and laboratory data to assist the clinician in making individual patient management decisions.

**2) Interfering Substances**

No interference with test results is seen by concentrations of bilirubin<0.06mg/ml, haemoglobin<16mg/dl or triglycerides< 12.5mg/ml.

**3) HAMA**

Patient samples containing human anti-mouse antibodies (HAMA) may give falsely elevated or decreased values. Although HAMA-neutralising agents are added, extremely high HAMA serum concentrations may occasionally influence results.

## RESULTS

**1) Calculation of Results**

- The analyzer automatically calculates the Toxo IgG concentration in each sample by means of a calibration curve which is generated by a 2-point calibration master curve procedure. The results are expressed in AU/ml. For further information please refer to the MAGLUMI Chemiluminescence Analyzer Operating Instructions.
- **Test results need NOT to multiply dilution rate!**

**2) Interpretation of Results**

Results obtained with the MAGLUMI Toxo IgG assay can be interpreted as follows:

- Non-reactive: A result less than 2 AU/ml (< 2 AU/ml) is considered to be negative.
- Reactive: A result greater than or equal to 2 AU/ml is (≥ 2 AU/ml) considered to be positive.

Results from assays of other manufacturers cannot be used interchangeably.

## PERFORMANCE CHARACTERISTICS

**1) Precision**

Intra-assay coefficient of variation was evaluated on 3 different levels of control serum repeatedly measured 20 times in the same run, calculating the coefficient of variation.

| **Intra-assay precision** | | | |
|---|---|---|---|
| Control | Mean(AU/ml) | SD(AU/ml) | CV% |
| Level 1 | 1.49 | 0.09 | 5.98 |
| Level 2 | 9.35 | 0.54 | 5.74 |
| Level 3 | 18.76 | 1.00 | 5.31 |

Inter-assay coefficient of variation was evaluated on three batches of kits. Repeatedly measured 3 different levels of control serum 21 times, calculating the coefficient of variation.

| **Inter-assay precision** | | | |
|---|---|---|---|
| Control | Mean(AU/ml) | SD(AU/ml) | CV% |
| Level 1 | 1.61 | 0.15 | 9.45 |
| Level 2 | 9.15 | 0.83 | 9.12 |
| Level 3 | 19.35 | 1.73 | 8.95 |

**2) Analytical Sensitivity**

The sensitivity is defined as the concentration of Toxo IgG equivalent to the mean RLU of 20 replicates of the zero standard plus two standard deviations corresponding to the concentration from the standard curve. The sensitivity is typically less than 0.25AU/ml.

**3) Specificity**

The specificity of the Toxo IgG assay system was assessed by measuring the apparent response of the assay to various potentially cross reactive analytes:

When CMV IgG, CMV IgM, Rubella IgG, Rubella IgM, Toxo IgM, HSV-1/2IgG, HSV-1/2IgM separately reach a concentration of 30AU/ml, measured Toxo IgG is negative. No cross reaction with the IgG or IgM antibody of HAV, HBV, HCV, HIV, syphilis, EBV. The ELISA diagnosed RF or ANA positive, which is non Toxo infected sample, this reagent's determination results show negative.

**4) Recovery**

Consider calibrator high of known concentration as a sample, dilute it by 1:2 ratio with diluents, and measure its diluted concentration for 10 times. Then calculate the recovery of measured concentration and expected concentration. The recovery should be within 90% -110%.

| Expected | Mean Measuring | Recovery |
|---|---|---|
| 9.8 AU/ml | 9.6 AU/ml | 98% |

**5) Linearity**

Use Toxo IgG calibrator to prepare the six-point standard curve, measuring all points' RLU except point A, and then do four-parameter linear fitting in double logarithm coordinate, the absolute linear correlation coefficient(r) should be bigger than 0.9800.

| Calibrator Point | Concentration AU/ml | Absolute linear correlation coefficient (r) |
|---|---|---|
| A | 0.0 | |
| B | 1.0 | r=0.9855 |
| C | 3.0 | |
| D | 8.0 | |
| E | 15.0 | |
| F | 30.0 | |

## REFERENCES


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