

# MAGLUMI IgA (CLIA)



130208004M



100



**Shenzhen New Industries  
Biomedical Engineering Co., Ltd**  
4F, Wearnes Tech Bldg,  
Science & Industry Park,  
Nanshan, Shenzhen, 518057 CHINA  
Tel. + 86-755-86028224  
Fax. + 86-755-26654850



**Lotus Global Co., Ltd**  
15 Alexandra Road  
London  
NW8 0DP  
UK  
Tel. + 44-20-75868010  
Fax. + 44-20-79006187



## FOR PROFESSIONAL USE ONLY

Store at 2...8 °C



COMPLETELY READ THE INSTRUCTIONS BEFORE  
PROCEEDING



## SYMBOLS EXPLANATIONS



Authorized Representative in Europe



Manufacturer



Attention. See Instructions For Use



Contents of kit



In vitro diagnostic medical device  
(In vitro diagnostic use)



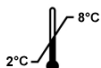
Lot number



Catalogue Code



Expiry date (Use by...)



Temperature limitation  
(store at 2...8 °C)



Number of tests



Keep away from sunlight



Keep upright

## INTENDED USE

The kit has been designed for the quantitative determination of Immunoglobulin A (IgA) in human urine.

The method can be used for samples over the range of 0-4000 µg/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

IgA is the main immunoglobulin in mucous, including tears, saliva, and colostrum, as well as respiratory, intestinal, prostatic, and vaginal secretions. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA provides protection against microbes proliferating in body secretions, especially those of the digestive and respiratory tracts. It does not activate complement, and opsonises only weakly. Its heavy chains are of the type  $\alpha$ . It exists in two forms, IgA1 (90%) and IgA2 (10%) that differ in the structure. IgA1 is composed like other proteins, however in IgA2 the heavy and light chains are not linked with disulfide but with noncovalent bonds. IgA1 is found in serum and made by bone marrow B cells, however IgA2 is made by B cells located in the mucosae and has been found to secrete into, colostrum, maternal milk, tears and saliva.

IgA is found in secretion in a specific form called secretory IgA, a dimer of two IgA monomers linked by two additional chains: One of these is the J chain (from join), which is a polypeptide of molecular mass 1,5 kD, rich with cysteine and structurally completely different from other immunoglobulin chains. This chain is formed in the antibody-secreting cells. The dimeric form of IgA in the outer secretions also has a polypeptide of the same molecular mass (1,5 kD) called the secretory chain and is produced by epithelial cells. It is also possible to find trimeric and even tetrameric IgA.

## PRINCIPLE OF THE TEST

Competitive immunoluminometric assay;

Use purified IgA antigen to label ABEI, and use anti-IgA monoclonal antibody to label FITC. Sample, Calibrator or Control with ABEI Label, FITC Label and magnetic microbeads coated with anti-FITC are mixed thoroughly and incubated at 37 °C, forming

complexes; after sediment in a magnetic field, decant the supernatant, then cycle washing for 3 times. 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 IgA present in controls or samples.



## KIT COMPONENTS

### Material Supplies

Reagent Integral for 100 determinations	
<b>Nano magnetic microbeads:</b> TRIS buffer, 1.2% (W/V), 0.2%NaN <sub>3</sub> , coated with sheep anti- FITC polyclonal antibody.	2.5ml
<b>Calibrator Low:</b> bovine serum, 0.2%NaN <sub>3</sub> .	2.5ml
<b>Calibrator High:</b> bovine serum, 0.2%NaN <sub>3</sub>	2.5ml
<b>FITC Label:</b> anti-IgA monoclonal antibody labeled FITC, contains BSA, 0.2%NaN <sub>3</sub> .	6.5ml
<b>ABEI Label:</b> purified IgA antigen labeled ABEI, contains BSA, 0.2%NaN <sub>3</sub> .	6.5ml
All reagents are provided ready-to-use	

Reagent Vials in kit box	
Internal Quality Control: containing BSA, 0.2%NaN <sub>3</sub> . (target value refer to Quality Control Information date sheet)	2.0ml

#### Accessories Required But Not Provided

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



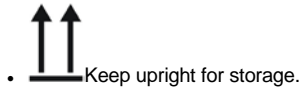
#### Preparation of the Reagent Integral

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 °C 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 WHO International Standard Immunoglobulins G, A and M, Human Serum NIBSC code: 67/086.

### 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: urine

Collect samples using standard procedures.

Store at 2-8

below - 20 °C

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

#### Specimen Conditions

- Use caution when handling patient specimens to prevent cross

042120524-v1.0-EN

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.

#### Preparation for Analysis

- Specimens must be mixed **thoroughly** after thawing by **low** speed vortexing or by gently inverting. 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

- Specimens can be stored up to 30 days frozen at -20°C or colder.

## WARNING AND PRECAUTIONS FOR USERS



- 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 °C 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<sup>13</sup>. 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.

40µl	Sample, calibrator or controls
+40µl	ABEI Label
+40µl	FITC Label
+20µl	Nano magnetic microbeads
15 min	Incubation
400µl	Cycle washing
3 s	Measurement

## DILUTION

Sample dilution by analyzer is not available in this reagent kit. Samples with concentrations above the measuring range can be diluted manually. After manual dilution, multiply the result by the dilution factor. Please choose applicable diluents or ask SNIBE for advice before manual dilution must be processed.

## 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

Patients with malignancies may exhibit IgA values within the normal range. IgA concentrations may be elevated in case of liver cirrhosis, hepatitis or tyrosinaemia. Thus, IgA determination is more suitable for therapeutic monitoring and follow-up as well as for a comparison with histological results. IgA serum levels may only be interpreted in context with the clinical picture and other diagnostic procedures. The IgA assay should not be used as the only criterion for cancer screening.

### 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-neutralizing agents are added, extremely high HAMA serum concentrations may occasionally influence results.

## RESULTS

### 1) Calculation of Results

- The analyzer automatically calculates the IgA 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 µg/ml. For further information please refer to the MAGLUMI Chemiluminescence Analyzer Operating Instructions.

## 2) Interpretation of Results

- Reference values: urine< 6 µg/ml or 0.6 mg/dl
- Results may differ between laboratories due to variations in population and test method. If necessary, each laboratory should establish its own reference range.

## 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			
	Mean(µg/ml)	SD(µg/ml)	CV%
Control	1.98	0.26	6.89
Level 1	11.85	0.68	5.75
Level 3	25.12	1.39	5.52

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			
	Mean(µg/ml)	SD(µg/ml)	CV%
Control	1.87	0.28	8.98
Level 2	11.92	1.04	8.75
Level 3	24.39	2.06	8.45

### 2) Analytical Sensitivity

The sensitivity is defined as the concentration of IgA 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 0.13 µg/ml.

### 3) Specificity

The specificity of the IgA assay system was assessed by measuring the apparent response of the assay to various potentially cross reactive analytes.

Compound	Concentration	Cross reactivity
IgG	40 µg/ml	0.5%
IgM	40 mg/dl	0.7%

### 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
11.6 µg/ml	11.8 µg/ml	102 %

### 5) Linearity

Use IgA 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 µg/ml	Absolute linear correlation coefficient (r)
A	0.0	
B	0.5	r=0.9820
C	1.0	
D	5.0	
E	10.0	
F	40.0	

## 6) Method comparison

A comparison of MAGLUMI IgA (y) with a commercially available IgA test (x) using clinical samples gave the following correlations ( $\mu\text{g/ml}$ ):

Linear regression

$$y = 0.97x + 8$$

$$r = 0.974$$

$$S_{y.x} = 14$$

Number of samples measured: 190

The sample concentrations were between 0.52 and 35  $\mu\text{g/ml}$ .

## REFERENCES

1. Significance of serum IgA in patients with acute hepatitis E virus infection [World Journal of Gastroenterology]
2. Sequence variations of the hypervariable region of hepatitis C virus and their clinical significance. Chinese Medical Journal. LIU Houyu, Zhou Kang, Wang Wei, Zhang Shunca
3. Detection of virus-specific immunoglobulin antibody Chinese Journal of Experimental and Clinical Virology Guo KS 1988; 2: 79-81.
4. S Fagarasan and T Honjo (2003). "Intestinal IgA Synthesis: Regulation of Front-line Body Defenses". Nat. Rev. Immunology 3 (1): 63-72.
5. P. Brandtzaeg, R. Pabst (2004). "Let's go mucosal: communication on slippery ground". Trends Immunology 25 (11): 570-577.
6. J Macpherson and E Slack. (2007). "The functional interactions of commensal bacteria with intestinal secretory IgA.". Curr Opin Gastroenterol. 23 (6): 673-678.
7. Delacroix DL et al. (1982). Immunology 383: 383-5.
8. Junqueira, Luiz C.; Jose Carneiro (2003). Basic Histology. McGraw-Hill. ISBN 0-8385-0590-2.