

## Product Information

### Measles (Rubeola) IgM ELISA kit

Catalog Number: EA100952

Storage Temperature: 2 – 8°C

## Instruction for Use

### Intended Use

The Measles IgM ELISA test is an enzyme linked immunosorbent assay (ELISA) for the detection of IgG class antibodies to Measles (Rubeola) in human serum or plasma.

### Background

Measles is an acute, highly contagious viral disease. Although measles is usually considered a childhood disease, it can be contracted at any age. Measles is spread by direct contact with nasal or throat secretions of infected people or, less frequently, by airborne transmission. Measles symptoms generally appear in two stages. In the first stage, the individual may have a runny nose, cough and a slight fever. The second stage begins on the third to seventh day and consists of high fever and red blotchy rash lasting four to seven days. The rash usually begins on the face and then spreads over the entire body. Symptoms usually appear in 10-12 days, although they may occur between 8-13 days after exposure. The presence of IgG antibody to measles virus is indicative of previous exposure or vaccination. In individuals with acute measles, a significant increase in measles IgG antibody level is indicative of recent infection. IgM antibodies to measles virus are often detectable with onset of the rash and typically persist for 4 weeks. At least 80% of patients will be positive for measles IgM at 6 days and 100% at 16 days after onset of symptoms.

### Principle of the Test

Diluted patient serum (serum diluent contains sorbent to remove Rheumatoid Factor and human IgG interference) is added to wells coated with purified measles antigen. Measles IgM specific antibody, if present, binds to the antigen. All unbound materials are washed away and the enzyme conjugate is added to bind to the antibody-antigen complex, if present. Excess enzyme conjugate is washed off and substrate is added. The plate is incubated to allow the hydrolysis of the substrate by the enzyme. The intensity of the color generated is proportional to the amount of IgM specific antibody in the sample.

### Components

<b>MATERIALS PROVIDED</b>	<b>96 Tests</b>
1. Microwells coated with Measles antigen	12x8x1
2. Sample Diluent: 1 bottle (ready to use)	22 ml
3. Calibrator: 1 Vial (ready to use)	1ml
4. Positive Control: 1 vial (ready to use)	1ml
5. Negative Control: 1 vial (ready to use)	1ml

6. Enzyme conjugate: 1 bottle (ready to use)	12ml
7. TMB Substrate: 1 bottle (ready to use)	12ml
8. Stop Solution: 1 bottle (ready to use)	12ml
9. Wash concentrate 20X: 1 bottle	25ml

### Materials and Equipment Required but Not Provided

1. Distilled or deionized water
2. Precision pipettes
3. Disposable pipette tips
4. ELISA reader capable of reading absorbance at 450nm
5. Absorbance paper or paper towel

### Disclaimer

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

### Specimen Collection and Preparation

1. Collect blood specimens and separate the serum.
2. Specimens may be refrigerated at 2–8°C for up to seven days or frozen for up to six months. Avoid repetitive freezing and thawing.

### Reagent Preparation

1. Prepare 1X Wash buffer by adding Wash Concentrate (25 ml, 20X) to 475 ml of distilled or deionized water. Store at room temperature (18-26°C).

### Assay Procedure

- Before proceeding with the assay, bring all reagents, serum references and controls to room temperature (18-26°C). Gently mix all reagents before use
  - The components in this kit are intended for use as an integral unit. The components of different lots should not be mixed
  - It is recommended that standards, control and serum samples be run in duplicate
  - Do not use sodium azide as preservative. Sodium azide inhibits HRP enzyme activities
1. Place the desired number of coated strips into the holder.
  2. Negative control, positive control, and calibrator are ready to use. Prepare 1:21 dilution of test samples, by adding 10 µl of the sample to 200 µl of sample diluent. Mix well.
  3. Dispense 100 µl of diluted sera, calibrator and controls into the appropriate wells. For the reagent blank, dispense 100 µl sample diluent in 1A well position. Tap the holder to remove air bubbles from the liquid and mix well. Incubate for 20 minutes at room temperature.
  4. Remove liquid from all wells. Wash wells three times with 300 µl of 1X wash buffer. Blot on absorbance paper or paper towel.
  5. Dispense 100 µl of enzyme conjugate to each well and incubate for 20 minutes at room temperature.
  6. Remove enzyme conjugate from all wells. Wash wells three times with 300 µl of 1X wash buffer. Blot on absorbance paper or paper towel.
  7. Dispense 100 µl of TMB substrate and incubate for 10 minutes at room temperature. Add 100 µl of stop solution.

8. Read O.D. at 450 nm using ELISA reader within 15 min. A dual wavelength is recommended with reference filter of 600-650 nm

### Calculation of Results

1. Check Calibrator Factor (CF) value on the calibrator bottle. This value might vary from lot to lot. Make sure you check the value on every kit.
2. Calculate the cut-off value: Calibrator OD x Calibrator Factor (CF).
3. Calculate the Ab (Antibody) Index of each determination by dividing the O.D. value of each sample by cut-off value.

### Example of a Standard Curve

Calibrator mean OD = 0.8

Calibrator Factor (CF) = 0.5

Cut-off Value =  $0.8 \times 0.5 = 0.400$

Positive control O.D. = 1.2

Ab Index =  $1.2 / 0.4 = 3$

Patient sample O.D. = 1.6

Ab Index =  $1.6 / 0.4 = 4.0$

### Quality Control

The test run may be considered valid provided the following criteria are met:

1. If the O.D. of the Calibrator should be greater than 0.250.
2. The Ab index for Negative control should be less than 0.9.
3. The Ab index for Positive control should be greater than 1.2.

### Interpretation

The following is intended as a guide to interpretation of Measles IgM test results; each laboratory is encouraged to establish its own criteria for test interpretation based on sample populations encountered.

#### • Antibody Index Interpretation

- <0.9 No detectable antibody to Measles IgM by ELISA
- 0.9-1.1 Borderline positive. Follow-up testing is recommended if clinically indicated.
- >1.1 Detectable antibody to Measles IgM by ELISA

### References

1. Johnson CE; Kumar ML; Whitwell JK; Staehle BO; Rome LP; Dinakar C; Hurni W; Nalin DR. Antibody persistence after primary measles-mumps-rubella vaccine and response to a second dose given at four to six vs. eleven to thirteen years. *Pediatr Infect Dis J* 1996;15(8):687-92.
2. Nates SV; Rey GY; Giordano MO; Depetris AR; Boshell J. Neutralization enzyme-linked immunosorbent assay for evaluation of immunity to measles virus. *Viral Immunol* 1995;8(1):47-52.
3. Nates S; Rey G; Giordano M; Medeot S; Depetris A; Boshell J; de Wolff CD. Immunoglobulin M antibody response to measles virus following natural virus infection, primary vaccination, and re-exposure to the virus. *Viral Immunol* 1997;10(3):165-73.
4. Arpadi SM; Markowitz LE; Baughman AL; Shah K; Adam H; Wiznia A; Lambert G; Dobroszycki J; Heath JL; Bellini WJ. Measles antibody in vaccinated human immunodeficiency virus type 1-infected children. *Pediatrics* 1996; 97(5):653-7.

5. de Souza VA; Pannuti CS; Sumita LM; de Andrade J´unior HF. Enzyme-linked immunosorbent assay-IgG antibody avidity test for single sample serologic evaluation of measles vaccines. J Med Virol 1997; 52(3):275-9.

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