ELISA kits available from ADI (see details at the web site)

Catalog#	ProdDescription
920-100-AIV	Chicken Anti-Avian Influenza virus (AIV) IgG ELISA kit
920-010-PAG	Swine/Pig Anti-Influenza A virus IgG ELISA kit
920-020-PAM	Swine/Pig Anti-Influenza A virus IgM ELISA kit
920-030-PAA	Swine/Pig Anti-Influenza A virus IgA ELISA kit
920-040-HAG	Human Anti-Influenza A virus IgG ELISA kit
920-100-AIV	Chicken Anti-Avian Influenza virus (AIV) IgG ELISA kit
920-010-PAG	Swine/Pig Anti-Influenza A virus IgG ELISA kit
920-050-HAM	Human Anti-Influenza A virus IgM ELISA kit
920-060-HAA	Human Anti-Influenza A virus IgA ELISA kit
920-110-AIM	Chicken Anti-Avian Influenza virus (AIV) IgM ELISA kit
600-640-PMY	Swine/Pig Myoglobin ELISA Kit
6250-40	Swine/Pig Haptoglobin ELISA kit
80186	Swine/Pig Serum Antibody detection ELISA kit, Qualitative
9000	Swine/Pig Albumin ELISA Kit, 96 tests, Quantitative
9020	Swine/Pig IgG (total) ELISA Kit, 96 tests, Quantitative
9080	Swine/Pig IgM ELISA Kit, 96 tests, Quantitative
920-110-AV	Chicken Anti-Anemia Virus (AV) Ig's ELISA kit
920-120-NDV	Chicken Anti-Newcastle Disease Virus (NDV) Ig's ELISA kit
920-130-IBV	Chicken Anti-Infectious Bronchitis Virus (IBV) Ig's ELISA kit
920-140-MDV	Chicken Anti-Marek's Disease Virus (MDV) Ig's ELISA kit
910-100-JEM	Mouse Anti-Japanese encephalitis virus (JEV) Ig's ELISA kit
910-110-JWM	Mouse Anti-Japanese encephalitis virus (JEV) Ig's WB kit, 12 tests
900-100-83T	Mouse Anti-Anthrax Protective Antigen 83 (PA83) Ig's ELISA kit
900-120-83T	Rabbit Anti-Anthrax Protective Antigen 83 (PA83) Ig's ELISA kit
900-140-83T	G. pig Anti-Anthrax Protective Antigen 83 (PA83) Ig's ELISA kit
900-150-83T	Monkey Anti-Anthrax Protective Antigen 83 (PA83) Ig's ELISA kit
900-160-83T	Human Anti-Anthrax Protective Antigen 83 (PA83) Ig's ELISA kit

Instruction Manual No. M-530-100-HMG

Measles IgG

ELISA KIT Cat. # 530-100-HMG, 96 Tests

For Detecting IgG antibodies against Measles Virus in Human Serum or Plasma

For In Vitro Research Use Only (RUO)

ALPHA DIAGNOSTIC INTERNATIONAL

4638 N Loop 1604 West • San Antonio• Texas 78249 • USA.

Phone (210) 561-9515 • Fax (210) 561-9544

Toll Free (800) 786-5777

Email: Techsupport@4adi.com

Web Site: www.4adi.com

Kit Components (96 tests)	
Measles IgG antigen coated strip plate, (8x12 strip or 96 wells) # 530-101	1 plate
Measles IgG **Standard A** (Negative Control) ,2 mL #530-102A	1 vial
Measles IgG **Standard B** (Cut-Off) ,3 mL #530-102B	1 vial
Measles IgG **Standard C** (Positive control) ,2 mL #530-102C	1 vial
Standards are provided ready-to-use, All controls contain 0.02 % methylisothiazolone and 0.02 % bromonitrodioxane as preservative	
Anti-Human IgG-HRP Conjugate, (20 ml) #530-103	1 bottle
Sample Diluent, 100 ml #530-100SD	1 bottle
Wash buffer (20X) 60 ml #530-100WB	1 bottle
TMB Substrate Solution, 15 ml #530-100-TMB	1 bottle
Stop Solution, 15 ml # 530-100ST	1 bottle
Complete Instruction Manual, M-530-100-HMG	1

Intended Use

ADI Measles IgG Antibody ELISA Test Kit has been designed for the detection of IgG class antibodies against Measles in Human serum and plasma. **For In Vitro Research Use Only (RUO)**

Introduction

Measles is a highly contagious viral disease characterized by a clinically distinct prodrome of fever, coryza, conjunctivitis, cough and a pathognomic exanthem (Koplik`s spots). The disease is the result of infection with the Measles Virus, genus Morbillivirus of the family Paramyxoviridae. Ten to twelve days after infection, the most prominent and characteristic prodromal symptoms appear: coryza; a persistant barking cough; keratoconjunctivitis, often with photophobia; and fever. Generally, lymphadenopathy and splenomegaly are also frequent. During this period, Koplik`s spots appear on the bucal mucosa that rapidly spread involving the entire mucous membrane. These spots are usually gone by the time the skin rash reaches its peak. The rash of Measles appears after a 3-to 5-days prodrome, some 14 days after exposure. The rash quickly becomes maculopapular and spreads rapidly over the face, neck, trunk and extremities during the next three days. At its height, the eruption has generally deepened to a redish purple and may be associated with edema of the skin. Complications are otitis media, pneumonia and encephalitis. Measles has a more severe expression in younger or undernourished children with a higher incidence of hemorrhage Measles, with 5% to 10% of lethal cases.

In people that have been vaccinated with inactive virus (before 1968), the infection can have severe manifestations as: pneumonia, peripheral edema, pleural effusion and atypical rash. Measles are one of the most contagious infectious diseases. The virus spreads through droplets emanating from the respiratory tract of infected persons or by direct contact. The incidence of Measles has declined since the introduction of vaccination programs.

10. Interpretation of Results

U/mL	Interpretation
< 9	negative
9 – 11	equivocal
> 11	positive

The results themselves should not be the only reason for any therapeutical consequences. They must be correlated to other clinical observations and diagnostic tests.

11. Expected Values

In an in-house study apparently, healthy subjects showed the following results:

Ig Isotype	n	Interpretation		
		positive	equivocal	negative
IgG	48	93.8 %	0.0 %	6.2 %

Quality Control

The test results are only valid if the test has been performed following the instructions. All standards and kit controls must be found within the acceptable ranges as stated on the vials. The positive control must show at least double the OD of the cut-off standard. If criteria are not met, the run is not valid and should be repeated. Each laboratory should use known samples as further controls. In case of any deviation the following technical issues should be proven (reagents, protocol, equipments, etc).

Run Validation Criteria

For an assay run to be considered valid, these Instructions for Use have to be strictly followed and the following criteria must be met:

- **Substrate Blank**: Absorbance value < 0.100
- **Negative Control**: Absorbance value < 0.200 and < Cut-off
- **Cut-off Control:** Absorbance value 0.150 – 1.300
- **Positive Control:** Absorbance value > Cut-off

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

PERFORMANCE CHARACTERISTICS

Intra-Assay-Precision 12.5 %
Inter-Assay-Precision 6.9 – 15.8 %
Sensitivity 75 – 129 %
Cross-Reactivity No cross-reactivity to Mumps and Varicella
Interferences Interferences with hemolytic, lipemic or icteric samples are not observed up to a concentration of 10 mg/mL hemoglobin, 5 mg/mL triglycerides and 0.5 mg/mL bilirubin

Clinical Specificity 100 %, **Clinical Sensitivity** 97.01 %

WORKSHEET OF A TYPICAL ASSAY

Stds/samples	Mean A450
Blank (Standard A)	0.032
Standard B	0.499
Standard C	1.091

NOTE: **These data are for demonstration purpose only**. It must not be used to determine the sample results.

*

CALCULATION OF RESULTS

The mean values for the measured absorptions are calculated after subtraction of the blank values from the controls and standards.

Examples: Blank 0.022

The obtained OD of the standards (y-axis, linear) are plotted against their concentration (x-axis, logarithmic) either on semi-logarithmic graph paper or using an automated method. A good fit is provided with cubic spline, 4 parameter logistics or Logit-Log. For the calculation of the standard curve apply each signal of the standards (one obvious outlier of duplicates might be omitted and the more plausible single value might be used). The concentration of the samples can be read from the standards curve. The initial dilution has been taken into consideration when reading the results from the graph. Results of samples of higher predilution must be multiplied with the dilution factor. Samples showing concentrations above the highest standard must be diluted as described in “Test Procedure” and re-assayed.

The Cut-off is the mean absorbance value of the Cut-off Control determinations.

Example: Absorbance value Cut-off Control 0.44 + absorbance value Cut-off control

0.42 = 0.86 / 2 = 0.43
Cut-off = 0.43

Results in Units [U]

$$\frac{\text{Sample (mean) absorbance value}}{\text{Cut-off}} \times 10 = [\text{Units} = \text{U}]$$

Example: $\frac{1.591}{0.43} \times 10 = 37$ U (Units)

PRINCIPLE OF THE TEST

Alpha Diagnostic’s Measles IgG antibody test kit is based on the principle of the enzyme immunoassay (EIA). Measles antigen is bound on the surface of the microtiter strips. Diluted patient serum or ready-to-use standards are pipetted into the wells of the microtiter plate. A binding between the IgG antibodies of the serum and the immobilized Measles antigen takes place. After a one-hour incubation at room temperature, the plate is rinsed with diluted wash solution, in order to remove unbound material. Then ready-to-use antihuman-IgG peroxidase conjugate is added and incubated for 30 minutes. After a further washing step, the substrate (TMB) solution is pipetted and incubated for 20 minutes, inducing the development of a blue dye in the wells. The color development is terminated by the addition of a stop solution, which changes the color from blue to yellow. The resulting dye is measured spectrophotometrically at the wavelength of 450 nm. The concentration of the IgG antibodies is directly proportional to the intensity of the color.

MATERIALS AND EQUIPMENT REQUIRED

Adjustable micropipet (5µl, 100µl, 500µl) and multichannel pipet with disposable plastic tips. Bidistilled water, reagent troughs, Orbital shaker, plate washer (recommended) and ELISA plate Reader (450nm).

PRECAUTIONS

Only for in-vitro use! Do not ingest or swallow! The usual laboratory safety precautions as well as the prohibition of eating, drinking and smoking in the lab have to be followed. All sera and plasma or buffers based upon, have been tested respective to HBsAg, HIV and HCV with recognized methods and were found negative. Nevertheless, precautions like the use of latex gloves have to be taken. Serum and reagent spills must be wiped off with a disinfecting solution (e.g. sodium hypochlorite, 5%) and have to be disposed of properly. All reagents have to be brought to room temperature (18 to 25 °C) before performing the test. Before pipetting all reagents should be mixed thoroughly by gentle tilting or swinging. Vigorous shaking with formation of foam should be avoided. It is important to pipet with constant intervals, so that all the wells of the microtiter plate have the same conditions. When removing reagents out of the bottles, care has to be taken that the stoppers are not contaminated. Further a possible mix-up has to be avoided. The content of the bottles is usually sensitive to oxidation, so that they should be opened only for a short time. In order to avoid a carry-over or a cross-contamination, separate disposable pipet tips have to be used. No reagents from different kit lots have to be used, they should not be mixed among one another. All reagents have to be used within the expiry period. In accordance with a Good Laboratory Practice (GLP) or following ISO9001 all laboratory devices employed should be regularly checked regarding the accuracy and precision. This refers amongst others to microliter pipets and washing or reading (ELISA-Reader) instrumentation. The contact of certain reagents, above all the stopping solution and the substrate with skin, eye and mucosa has to be avoided, because possible irritations and acid burns could arise, and there exists a danger of intoxication.

Applicable **MSDS**, if not already on file, for the following reagents can be obtained from ADI or the web site. TMB (substrate), Diluted H2SO4 (1N, stop solution), and Thimerosal (0.02% v/v in standards, conjugate diluent and HRP-conjugates).

SPECIMEN COLLECTION AND HANDLING

Principally serum or plasma (EDTA, heparin) can be used for the determination. Serum is separated from the blood, which is aseptically drawn by venipuncture, after clotting and centrifugation. The serum or plasma samples can be stored refrigerated (2-8°C) for up to 48 hours, for a longer storage they should be kept at -20 °C. The samples should not be frozen and thawed repeatedly. Lipemic, hemolytic or bacterially contaminated samples can cause false positive or false negative results. For the performance of the test the samples (not the standards) have to be diluted 1:101 with ready-to-use sample diluent (e.g. 5 µL serum + 500 µL sample diluent).

REAGENTS PREPARATION

1. **Dilute Wash buffer 1:20 with water**. **(eg. 10 ml washing buffer + 190 ml distilled water)** Store diluted buffer at 4oC for 1 month. (If during the cold storage crystals precipitate, the concentrate should be warmed up at 37 degrees C for 15 minutes.

All reagents must be at room temperature prior to their use.

STORAGE AND STABILITY

The microtiter well plate and all other reagents are stable at 2-8^{O}C until the expiration date printed on the label. The whole kit stability is usually 6 months from the date of shipping under appropriate storage conditions. The unused portions of the standards should be stored at 2-8^{O}C or stored frozen in small aliquots and should be stable for 3 months.

References: Altintas DU (1996) Med. Clin. 106, 647-648; Bayas JM (1996), Med. Clin. 106, 561-564; Chiu HH (1997) J. Med. Virol. 51, 32-35; DeSoouza VA (1997) J. Med. Virol. 52, 275-279; Duvdevani P (1996) Clin. Diagn. Virol. 7, 1-6; Narita M (1997) Clin. Diagn. Virol. 8, 233-239; Garces P (1995) Aten. Primaria 15, 235-237; Vardas E (1997) S. Afr. Med. J. 87, 1709

TEST PROCEDURE *(ALLOW ALL REAGENTS TO REACH ROOM TEMPERATURE BEFORE USE).* **Dilute the wash buffer with water (1:19)**.

Remove required number of coated strips and arrange them on the plate. Store unused strips in the bag. **All samples should be diluted 1:100 (5 ul samples in 500 ul sample diluent)**. It is recommended to prepare a parallel replica plates containing all sample for quick transfer to the coated plate.

1. Label or mark the microtiter well strips to be used on the plate.

2. Pipet **100 ul of** samples (diluted 1:100), **ready-to-use standards** & **controls** into appropriate wells in *duplicate*. See worksheet of a typical set-up on page 5. Cover the plate, mix gently for 5-seconds and incubate at 37 °C for **60 min.**

3. Aspirate the well contents and blot the plate on absorbent paper. Immediately, **wash the wells 3 times** with 250-300 ul of 1X wash buffer. We recommend using an automated ELISA plate Washer for better consistency. Failure to wash the wells properly will lead to high blank or zero values. If washing manually, plate must be tapped over paper towel between washings to ensure proper washing.

4. Add **100 ul anti-IgG-HRP conjugate** to all wells leaving one empty for the substrate blank. Mix gently for 5-10 seconds. Cover the plate and incubate for **30 minutes** at room temp (**20-25°C**).

5. Wash the wells 3 times as in step 3.

6. Add **100 ul TMB substrate solution**. Mix gently for 5-10 seconds. Cover the plate and incubate for **15 minutes** at room temp (**20-25°C**) in the dark. Blue color develops in positive controls and samples.

7. Stop the reaction by adding **100 ul of stop solution** to all wells. Mix gently for 5-10 seconds to have uniform color distribution (blue color turns yellow).

8. Measure the **absorbance at 450 nm** using an ELISA reader within 60 min.

NOTES

Read instructions carefully before the assay. Do not allow reagents to dry on the wells. Careful aspiration of the washing solution is essential for good assay precision. Since timing of the incubation steps is important to the performance of the assay, pipet the samples without interruption and it should not exceed 5 minutes to avoid assay drift. If more than one plate is being used in one run, it is recommended to include a standard curve on each plate. The unused strips should be stored in a sealed bag at 4^{O}C. Do not touch the bottom of the wells.