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
920-050-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

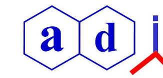
Instruction Manual No. M-930-100-TTH

Tetanus Toxoid IgG

ELISA KIT Cat. # 930-100-TTH

For Detecting Human IgG antibodies against Tetanus Toxoid in Serum or Plasma

For In Vitro Research Use Only



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Tetanus Toxiod IgG ELISA KIT Cat. # 930-100-TTH (96 tests)

Kit Components (96 tests)	Cat #
Tetanus Toxoid antigen coated strip plate, (8x12 strip or 96 wells) # 930-101	1 plate
Tetanus Toxoid Standard A IgG (2mL) #930-102	1 vial
Tetanus Toxoid Standard B IgG (2mL) #930-103	1 vial
Tetanus Toxoid Standard C IgG (2mL) #930-104	1 vial
Tetanus Toxoid Standard D IgG (2mL) #930-105	1 vial
Tetanus Toxoid Standard E IgG (2mL) #930-106 All controls contain 0.02 % methylisothiazolone and 0.02 % bromonitrodioxane as preservative	1 vial
Anti-Human IgG-HRP Conjugate, (15 ml) #930-107	1 bottle
Sample Diluent, 60 ml #930-100SD	1 bottle
Wash buffer (10X) 60 ml # 930-100WB	1 bottle
TMB Substrate Solution, 15 ml #930-100SS	1 bottle
Stop Solution, 15 ml # 930-100ST	1 bottle
Plastic foils (2) for covering plates and Resealable bag for the un-used antigen strips	1 bottle
Complete Instruction Manual	M-930-100

Intended Use

ADI Human Tetanus Toxoid IgG Antibody ELISA Test Kit has been designed for the detection and the quantitative determination of specific IgG antibodies against Tetanus Toxoid in serum and plasma.

Introduction

Tetanus is a disease caused by the toxin from Clostridium tetani. Through better hygienic conditions and a wide prophylaxis by vaccination, the disease rate could be decreased worldwide. Nevertheless every year 400,000 - 800,000 persons die by this infection. The majority of these persons live in under-developed countries. The protection through vaccination is very rare in older persons, because Tetanus antitoxin levels decline with age. The immunity against Tetanus has a vital significance for a lot of actions in business and free time. Sufficient protection is achieved by vaccination and following booster injections. Protection begins at a level of 0.1 IU/mL of anti-Tetanus Toxoid.

There is only a very low vaccination risk. Nevertheless it is advisable to detect the immunity with a qualified test before boostering. By this way it is possible to prevent the patient of side effects like local swelling, pain and fever. Failure to respond to one or more antigens can sometimes be observed in patients with normal or high levels of all immunoglobulins, and in patients with isolated immunodeficiencies. Thus, normal immunoglobulin concentrations do not exclude antibody deficiency, and response to antigenic stimulation should be tested. If antibody determinations are performed over an extended period of time after priming and boostering, abnormalities in the rate of decline of cellular interactions as well as disorders in peak titers.

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).

PERFORMANCE CHARACTERISTICS

Intra-Assay-Precision 6.9 %

Inter-Assay-Precision 10.4 %

Inter-Lot-Precision 7.4-13.4%

Analytical Sensitivity 0.004 U/mL

Clinical Sensitivity 90 %

Recovery 76-107 %

Linearity 77-114 %

Interferences

No interferences to bilirubin up to 0.3 mg/mL; Hemoglobin up to 8.0 mg/mL and triglycerides up to 5.0 mg/mL.

Cross Reactivity

No cross reactivity to Corynebacterium diptheriae.

References

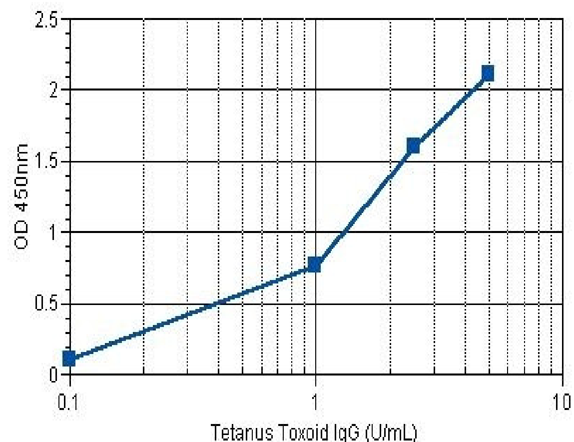
Ambrosch, F et al (1984) Micro-ELISA Methode zur Bestimmung der Tetanus-Antikorper, A258; Chandler, H.M., et al (1984) A new rapid semi-quantitative enzyme immunoassayfor tetanus. 8;137; Ehrengut W., et al (1970) Reaktionen der Wundstarrkrampfimpfung: 95; Eisel, U.. et al (1986) Tetanus Toxin primary structure 5; 2495.

WORKSHEET OF A TYPICAL ASSAY

Wells	Stds/samples	Mean A450	Net A450	Results
A1, A2	**Blank (Standard A)**	0.022	-	-
B1, B2	Standard B	0.106		
C1, C2	Standard C	0.766		
D1, D2	Standard D	1.603		
D1, D2	Standard E	2.101		

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

Standard	U/mL	Mean OD
Standard A	0.0	0.022
Standard B	0.1	0.106
Standard C	1.0	0.766
Standard D	2.5	1.603
Standard E	5.0	2.101



PRINCIPLE OF THE TEST

Alpha Diagnostic's Tetanus Toxoid IgG antibody test kit is based on the principle of the enzyme immunoassay (EIA). Tetanus 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 Tetanus Toxoid antigen takes place. After a one hour incubation at room temperature, the plate is rinsed with diluted wash solution, in order to remove inbound material. Then ready-to-use anti-human-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 have to 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 H_2SO_4 (1N, stop solution), and Thimerosal (0.02% v/v in standards, conjuagte 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** 1:10 with 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°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°C or stored frozen in small aliquots and should be stable for 3 months.

TEST PROCEDURE *(ALLOW ALL REAGENTS TO REACH ROOM TEMPERATURE BEFORE USE).*

Remove required number of coated strips and arrange them on the plate. Store unused strips in the bag. **All samples should be diluted 1:101 (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. Dilute the wash buffer with water (1:10),

2. Dispense 100 ul diluent in 1 well to be used as blank. Pipet **100 ul of** , Prediluted controls, and samples (diluted 1:101) 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 room temp 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 (25-28oC).

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 **20 minutes** at room tempr. 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°C. Do not touch the bottom of the wells.

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