Manufactured for Immuno-Biological Laboratories Inc.
(IBL-America)
8201 Central Avenue, NE, Suite P
Minneapolis, MN 55432
Tel: 763-780-2955
Toll Free: 1-888-523-1246

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Coxiella burnetii Phase 1 IgA / IgG and Coxiella burnetii Phase 2 IgG / IgM

For Research Use Only – Not for Use in Clinical Procedures

CONTENTS

IBL-America
Coxiella burnetii Phase 1 IgA/IgG and Coxiella burnetii Phase 2 IgG/IgM

Enzyme-immunoassay for determination of human antibodies

For Research Use Only – Not for Use in Clinical Procedures

Coxiella burnetii Phase 1 IgA	Order Nr.:	IB05035
Coxiella burnetii Phase 1 IgG	Order Nr.:	IB05036
Coxiella burnetii Phase 2 IgG	Order Nr.:	IB05037
Coxiella burnetii Phase 2 IgM	Order Nr.:	IB05038

1 INTENDED USE

1.1 Coxiella burnetii Phase 1 IgA

Coxiella burnetii Phase 1 IgA is a qualitative immunoassay for the detection of Coxiella burnetii-specific human IgA antibodies in serum or plasma. The test system can be processed manually or automatically. The tests are designed for professional use.

1.1 Coxiella burnetii Phase 1 IgG

Coxiella burnetii Phase 1 IgG is a qualitative immunoassay for the detection of Coxiella burnetii-specific human IgG antibodies in serum or plasma. The assay can be used to support epidemiological studies. The test system can be processed manually or automatically. The tests are designed for professional use.

1.1 Coxiella burnetii Phase 2 IgG

Coxiella burnetii Phase 2 IgG is a qualitative immunoassay for the detection of Coxiella burnetii-specific human IgG antibodies in serum or plasma. The assay can be used to support epidemiological studies. The test system can be processed manually or automatically. The tests are designed for professional use.

1.1 Coxiella burnetii Phase 2 IgM

Coxiella burnetii Phase 2 IgM is a qualitative immunoassay for the detection of Coxiella burnetii-specific human IgM antibodies in serum or plasma. test system can be processed manually or automatically. The tests are designed for professional use.

2 BACKGROUND

Coxiella burnetii is a gram-negative, aerobic coccobacillus of the Coxiellaceae family. The causative agent of the so called Q fever is extremely infectious and very resistant to environmental factors. Just a few bacteria can result in transmission and disease.
Q fever (Query Fever, Queensland Fever, Balkan Fever) was first described in 1937 by Edward Holbrook Derrick as an illness of unknown origin found in abattoir workers in Brisbane (Queensland, Australia). In the same year the causative agent was isolated by Frank Macfarlane Burnet and Mavis Freeman. Herald Rea Cox and Gordon Davis isolated the bacterium in 1938 from ticks in Nine Mile (Montana, USA) and described the transmission route. Finally, the pathogen was officially named as Coxiella burnetii.
ELISA test-systems are especially suited for the differential analysis of immunoglobulin classes directed against the virus.

3 TEST PRINCIPLE

The ELISA (Enzyme Linked Immunosorbent Assay) is an immunoassay, which is particularly suited to the determination of antibodies in various kinds of samples. The reaction is based on the specific interaction of antibodies with their corresponding antigen. The test strips of the microtiter plate are coated with specific antigens of the pathogen of interest. If antibodies in the sample are present, they bind to the fixed antigen. A secondary antibody, which has been conjugated with the enzyme alkaline phosphatase, detects and binds to the immune complex. The colourless substrate p-nitrophenylphosphate is then converted into the coloured product p-nitrophenol. The signal intensity of this reaction product is proportional to the concentration of the analyte in the sample and is measured photometrically.

4 KIT COMPONENTS

Test Components	Pieces / Volume	
	Phase 2 IgG	**Phase 1 IgA / IgG Phase 2 IgM**
Break apart microtiter test strips each with eight antigen coated single wells, (altogether 96) MTP 1 frame. The coating material is inactivated.	12 pieces	12 pieces
Standard serum (ready-to-use) STD, Human serum in protein containing phosphate buffer;negative for anti-HIV Ab, HBs-Ag (Hepatitis B-Virus surface antigen) and anti-HCV Ab; preservative: < 0.1 % sodium azide; colouring: Amaranth O.	2 x 2ml	-
Cut-off serum (ready-to-use) C/O Human serum in protein containing phosphate buffer; negative for anti-HIV Ab, Hbs-Ag (Hepatitis B-Virus-surface antigen) and anti-HCV Ab; preservative: < 0.1 % sodium azide; coloring: Chinaldin yellow	-	2 x 2ml
Positive control serum (ready-to-use) POS Human serum in protein containing phosphate buffer; negative for anti-HIV Ab, Hbs-Ag (Hepatitis B-Virus-surface antigen) and anti-HCV Ab; preservative: < 0.1 % sodium azide; coloring: Amaranth O	-	2 ml
Negative control serum (ready-to-use) NEG, Human serum in protein containing phosphate buffer; negative for anti-HIV Ab, Hbs-Ag (Hepatitis B-Virus-surface antigen) and anti-HCV Ab; preservative: < 0.1 % sodium azide; colouring: Lissamin Green V.	2 ml	2 ml
Anti-human IgA, IgG or IgM conjugate (ready-to-use) APC Depending on the immunoglobulin class of the test, the appropriate conjugate is provided; Anti-human IgA, IgG or IgM polyclonal antibody, conjugated to alkaline phosphatase, stabilised with protein stabilisation solution; preservative: 0.01 % methylisothiazolone, 0.01 % bromnitrodioxane.	13 ml	13 ml
Washing solution concentrate (sufficient for 1000 ml) WASH, Sodium chloride solution with Tween 20 and 30 mM Tris/HCl, pH 7,4; preservative: < 0.1 % sodium azide.	33.3 ml	33.3 ml
Dilution buffer (ready-to-use) DILB, Protein containing phosphate buffer with Tween 20; preservative: < 0.1 % sodium azide; colouring: 0.01 g/l Bromphenol blue.	2 x 50 ml	2 x 50 ml
Stopping solution (ready-to-use) STOP, <0.1 N sodium hydroxide, 40mM EDTA	15 ml	15 ml
Substrate (ready-to-use) pNPP, Para-nitrophenylphosphate in solvent free buffer; preservative: < 0.1 % sodium azide	13 ml	13 ml
Quality control certificate INFO	1 page	1 page

5 MATERIAL REQUIRED BUT NOT SUPPLIED

- common laboratory equipment
- photometer for microtitre plates with filter, wavelength 405 nm, recommended reference wavelength 620 nm - 690 nm (e.g. 650 nm)
- Microtiter plate washer
- incubator 37 °C
- moist chamber
- distilled water
- for the IgM detection: Rf-Absorbent, order no. IB05998 (20 ml)

Recommended but not required:

Control serum 5 x 3 ml order no.: IB05037CON for Coxiella b. phase 2 IgG
Control serum 5 x 3 ml order no.: IB05038CON for Coxiella b. phase 2 IgM

6 STORAGE AND STABILITY

Reagent	Storage	Stability
Microtiter strips (coated with antigen)	Unopened at 2 – 8 °C after opening at 2 – 8 °C in closed aluminum bag with desiccant	see expiry date; 6 months
Control sera / Standard sera	Unopened at 2 – 8 °C after opening at 2 – 8 °C	see expiry date 6 months
Conjugate	Unopened at 2 – 8 °C after opening at 2 – 8 °C	see expiry date 6 months
Dilution buffer	Unopened at 2 – 8 °C after opening at 2 – 8 °C	see expiry date 6 months
Washing solution	Unopened / after opening at 2 – 8 °C working dilution at 2 – 8 °C working dilution at room temperature	see expiry date 2 weeks 1 week
Substrate	Unopened at 2 – 8 °C after opening at 2 – 8 °C	see expiry date 6 months
Stopping solution	Unopened at 2 – 8 °C after opening at 2 – 8 °C	see expiry date 6 months

7 TEST PROCEDURE

7.1 General Information

Optimum results can only be achieved if the instructions are strictly followed. The components of the kit must not be exchanged for reagents of other manufacturers. Standard and control sera are defined exclusively for the test kit to be used and must not be used in other lots. Dilution buffer, washing solution, substrate and stop solution can be used for all IBL-America immunoassays coded IB05xxx irrespective of the lot and the test.

Each IBL-America ELISA coded IB050xxx contains a ready-to-use sample dilution buffer. In some cases the use of special dilution buffers is necessary to guarantee consistent quality and reliable results. The dilution buffers can be used irrespective of the lots.

There are three different conjugate concentrations for each immunoglobulin class (IgA, IgG, IgM), indicated on the label as + (low), ++ (medium) and +++ (high). Depending on the immunoglobulin class of the test kit, the appropriate conjugate is provided. Conjugates with the same concentration and of the same immunoglobulin class are interchangeable and can be used for other IBL-America ELISAs coded IB05xxx irrespective of the lot and the test. Dilution or alteration of the reagents may result in a loss of sensitivity. Use aseptic techniques when removing aliquots from the reagent tubes to avoid contamination.

Reproducibility of test results is dependent on thorough mixing of the reagents. Agitate the flasks containing control sera before use and also all samples after dilution (e.g. by using a vortex mixer).

Be sure to pipette carefully and comply with the given incubation times and temperatures. Significant time differences between pipetting the first and last well of the microtiter plate when dispensing samples and control sera, conjugate or substrate can result in different pre-incubation times, which may influence the precision and reproducibility of the results. Avoid exposure of reagents to strong light during storage and incubation.

Adequate washing avoids test unspecificities. Therefore, the washing procedure should be carried out carefully. All of the flat bottom wells should be filled with equal volumes of washing buffer. At the end of the procedure ensure that the wells are free of all washing buffer in order to avoid uncontrolled dilution effects. Avoid foaming!

Reagents must be tightly closed after use to avoid evaporation and contamination. Take care not to mix-up the caps of the bottles and/or vials.

The ELISA test kits are only valid if the lot-specific validation criteria on the quality control certificate are fulfilled.

7.2 Sample Preparation and Storage

Lipaemic, hemolytic or icteric samples (serum or plasma) should only be tested with caution. Obviously contaminated samples should not be tested. Serum or plasma (EDTA, citrate, heparin) collected according to standard laboratory methods are suitable samples. Samples must not be thermally inactivated (e. g. 56 °C, 30 minutes).

7.2.1 Dilution of Samples

Before running the test, all samples (V_1) must be diluted in dilution buffer (V_2) as follows:

Coxiella burnetii Phase 2 IgG ELISA:

$V_1 + V_2 = 1+500$	add	10 µl	sample
	each to	1000 µl	dilution buffer (= 1+100)
		50 µl	of the first dilution
	each to	200 µl	dilution buffer (= 1+4)

Coxiella burnetii Phase 1 IgA, IgG ELISA:

$V_1 + V_2 = 1+100$	add	10 µl	sample
	each to	1000 µl	dilution buffer

After dilution and before pipetting into the microtiter plate the samples must be mixed thoroughly to prepare a homogenous solution.

Coxiella burnetii Phase 2 IgM ELISA:

Interference with rheumatoid factors

Rheumatoid factors are autoantibodies mainly of the IgM class, which preferably bind to IgG immune complexes. The presence of non-specific IgM antibodies (rheumatoid factors) can lead to false-positive results in the IgM assay. Furthermore, the possibility exists, that weak-binding pathogen-specific IgM antibodies may be displaced by stronger-binding IgG antibodies leading to a false negative IgM result. Therefore it is necessary to pretreat samples with rheumatoid factor-absorbens prior to IgM detection (Rf-Absorbent IB05998). Rf-absorption is performed by incubation of the sample in Rf-dilution buffer for 15 minutes at room temperature or over night at 4 °C. The test procedure is described in a separate instruction manual.

Before running the test, rheumatoid factor-absorbent (V_1) must be diluted 1+4 in dilution buffer (V_2).

$V_1 + V_2 = V_3 (1 + 4)$	add	200 µl	Rf-absorbent
	each to	800 µl	dilution buffer

Samples (V_4) must be diluted in this Rf-dilution buffer (V_3):

$V_4 + V_3 = 1+100$	add	10 µl	Sample
	each to	1000 µl	Rf-dilution buffer

After dilution and before pipetting into the microtiter plate the samples must be mixed thoroughly to prepare a homogenous solution.

7.2.2 Sample Storage

The samples should not be stored for more than 7 days at 2 – 8 °C. Extended storage is possible at ≤ -20 °C. Avoid repeated freezing and thawing of samples. Diluted samples can be stored at 2 – 8 °C for one week.

7.3 Preparation of Kit Reagents

Bring all reagents to room temperature before testing.

7.3.1 Microtiter Test Strips

The microtiter test strips labeled with abreviations for pathogen and immunoglobulin class are packed with a dessicant in an aluminum bag. To open the aluminum bag of the microtiter plate please cut off the top of the marked side only, in order to guarantee proper resealing. Take unrequired cavities out of the frame and put them back into the aluminum bag. Close bag carefully to ensure airtight conditions. Do not use the strips if the aluminum bag is damaged or if the bag with remaining strips and dessicant was not properly resealed.

7.3.2 Control Sera / Standard Sera

Control and standard sera are ready-to-use and must not be diluted any further. For each test run - independent of the number of microtiter test strips to be used - control and standard sera must be included. Standard and cut off sera should be set up in duplicate.
Do not treat control sera with Rf-absorbent.

7.3.3 Anti-human IgA, IgG or IgM AP-Conjugate (ready-to-use)

The required conjugate concentration (+, ++, +++) is indicated on the quality control certificate. Please refer also to the specifications on the label. Avoid contamination.

7.3.4 Washing Solution (Concentrate)

Dilute washing buffer concentrate (V_1) 1:30 with aqua dest. to a final volume of V_2. Bottles used for the working dilution should be cleaned regularly. Discard cloudy solutions.

Example:

Buffer concentrate (V_1)	Final volume (V_2)
33.3 ml	1000 ml
1.0 ml	30 ml

7.3.5 Dilution Buffer for Samples (ready-to-use)

Discard cloudy solutions

7.3.6 Substrate (ready-to-use)

Substrate in unopened bottle may have a slightly yellow coloring, which does not reduce the quality of the product! Avoid contamination.

7.3.7 Stopping Solution (ready-to-use)

7.4 Overview - Test Procedure

Coxiella burnetii Phase 1 IgA/IgG
Coxiella burnetii Phase 2 IgM
Coxiella burnetii Phase 2 IgG

In case of IgM detection absorption of rheumatoid factor, see No. 7.2.1;
Incubation 15 minutes at room temperature or over night at 4°C

sample dilution
Phase 1 IgA/IgG and Phase 2 IgM: 1+100
resp. Phase 2 IgG: 1+500

Pipette diluted samples and ready-to-use control / standard sera into the microtest wells (100 µl)

⇩

INCUBATION 60 Min./ 37 °C
moist chamber

⇩

WASH (4 x 300 µl DIL WASH)[1]

⇩

Pipette conjugate solution APC (100 µl)

⇩

INCUBATION 30 Min./ 37 °C
moist chamber

⇩

WASH (4 x 300 µl DIL WASH) [1]

⇩

Pipette substrate solution pNPP (100 µl)

⇩

INCUBATION 30 Min./ 37 °C
moist chamber

⇩

Pipette stopping solution STOP (100 µl)

⇩

READ EXTINCTION at 405 nm

[1]For manual use:
tap plate at the end of the wash procedure on paper towel.

7.5 Manual Test Procedure

1. Place the required number of **cavities in the frame** and prepare a protocol sheet.
2. Add each **100 µl of diluted sample or ready-to-use controls** into the appropriate wells of microtiter test strips. Spare one well for substrate blank, e.g.:

antigen-cavities	IgA, IgG, IgM
well A1	substrate bank
well B1	negative control
well C1	cut off - serum
well D1	cut off - serum
well E1	positive control
well F1	sample 1....

3. **Sample incubation** for 60 minutes (+/- 5 min) at 37 °C (+/- 1°C) in moist chamber
4. After incubation **wash** all wells with washing solution (by automated washer or manually):
   - aspirate or shake out the incubation solution
   - fill each well with 300 µl washing solution
   - aspirate or shake out the washing buffer
   - repeat the washing procedure 3 times (altogether 4 times!)
   - dry by tapping the microtiter plate on a paper towel
5. **Addition of conjugate**
   Add 100 µl of the ready-to-use IgA/IgG/IgM conjugate to the appropriate wells (except substrate blank)
6. **Conjugate incubation** for 30 minutes (+/- 1 min)* at 37 °C (+/- 1 °C) in moist chamber.
7. After incubation **wash** all wells with washing solution (see above)
8. **Addition of substrate**
   Add 100 µl of ready-to-use substrate solution to each well (including well for substrate blank!)
9. **Substrate incubation** for 30 minutes (+/- 1 min)* at 37 °C (+/- 1 °C) in moist chamber.
10. **Stopping of the reaction**
    Add 100 µl stopping solution to each well, shake microtiter plate gently to mix.
11. **Read extinction**
    Read optical desity (OD) within 60 minutes at 405 nm against substrate blank, reference wave length between 620 nm and 690 nm (e.g. 650 nm).

7.6 Automated Test Procedure

These ELISA tests also are validated for use with Immunomat (using the following consumables: VT124, VT111, VT112) and suited for processing on similar analyzers. For processing on the Immunomat the current software version including reagent check has to be used. The automated processing is performed analogous to manual use. Please note, that under special working-conditions internal laboratory adaptations of the substrate incubation times may be necessary.

7.7 Positive Control / Accuracy Control

For the periodic verification of the test method, in order to fulfil the requirements of laboratory internal quality management systems, we recommend using IBL-America ELISA controls (cat.-no. IB05xxxCON, see chapter 5) to determine precision and accuracy of the test runs. The use of IBL-America ELISA controls is described in specific instruction manuals.

8 TEST EVALUATION

For qualitative interpretation of serum samples a lot specific correction factor as well as a lot specific grey zone is calculated by manufacturer for each kit lot. These values can be found on the lot specific quality certificate included in each test kit.

For test run control a standard serum is used in each individual test run. For this control serum a reference value with a validity range is determined by the quality control of the manufacturer. Within this range a correct cut-off interpretation is ensured.

8.1 Criteria of Validity

The substrate blank must be < 0.25 OD
The negative control must be negative.
The mean OD-value (after subtraction of the substrate blank!) of the standard serum, cut-off control, and positive control must be within the validity range, which is given on the lot specific quality control certificate.
The variation of OD-values of the standard serum may not be higher than 20%.

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

8.2 Cut-off Calculation

A lot specific quality control certificate is included in the test kit so that the obtained OD values can be interpreted qualitatively. The substrate blank must be substracted from all OD values prior to evaluation.

To fix the cut-off ranges multiply the mean value of the measured standard or cut-off serum OD with the lot specific correction factor from the quality certificate. Then add and substract the lot specific grey zone percentage mentioned on the quality certificate to obtain the upper and lower cut-off. The following numbers are an example only, the valid data you will find in the lot-specific QC certificate which comes with each kit.

Lot specific correction factor: 0.805
Lot specific grey zone: 15%

If the measured mean absorbance value of the standard serum or cut-off serum is 0.84 OD, the range of the cut-off is 0.575-0.778 OD

Calculation Example
Lower cut-off: (0.84 * 0.805) -15% = OD 0.575
Upper cut-off: (0.84 * 0.805) +15% = OD 0.778

8.3 Borderline Ranges

The borderline range indicates the range for borderline test results. Values obtained, when testing a sample, which fall below this range indicate a negative test result; values above the borderline range are interpreted positive. In cases where the results are within the borderline range a definitive interpretation of the result is not possible. In such cases, the test should be repeated in parallel with a follow-up sample taken one to two weeks later (serum pair).

9 PERFORMANCE CHARACTERISTICS

9.1 Sensitivity and Specificity

	Sensitivity	Specificity
Coxiella burnetii Phase 2 IgG	92.5%	>99%
Coxiella burnetii Phase 2 IgM	94.4%	99.3%
Coxiella burnetii Phase 1 IgA/IgG	94.2%	96.2%

9.2 Reproducibility

Coxiella burnetii Phase 1 IgA:

Sample	Mean Value (OD)	Intraassay (CV %)	Mean Value (OD)	Interassay (CV %)
Sample 1	0.153	6.0	0.156	16.3
Sample 2	0.814	6.8	0.721	9.1
Sample 3	1.696	4.1	1.512	6.3

Coxiella burnetii Phase 1 IgG:

Sample	Mean Value (OD)	Intraassay (CV %)	Mean Value (OD)	Interassay (CV %)
Sample 1	0.188	3.2	0.207	13.0
Sample 2	0.363	2.6	0.366	8.2
Sample 3	0.788	3.1	0.852	4.5

Coxiella burnetii Phase 2 IgG:

Sample	Mean Value (OD)	Intraassay (CV %)	Mean Value (OD)	Interassay (CV %)
Sample 1	0.116	3.6	0.127	12.2
Sample 2	1.490	2.5	1.552	6.3
Sample 3	1.865	3.0	1.912	7.0

Coxiella burnetii Phase 2 IgM:

Sample	Mean Value (OD)	Intraassay (CV %)	Mean Value (OD)	Interassay (CV %)
Sample 1	0.060	6.2	0.087	10.4
Sample 2	1.529	2.7	1.632	4.5
Sample 3	1.695	1.7	1.773	5.0

9.3 Cross-reactivities

Coxiella burnetii Phase 1 IgA:

To determine detection of cross-reactive antibodies directed against different parameters sera were analyzed with Coxiella burnetii Phase 1 IgA. Positive sera (10 sera each) for Brucella IgA, Mycoplasma pneumoniae IgA and Chlamydia IgG have been tested as well as sera positive for rheumatoid factor (RF) and anti-nuclear antibodies (ANA). Within this internal evaluation potential cross-reactivites with five Brucella IgA and three ANA positive serum samples have been observed. Other cross-reactivites cannot be ruled out in general.

Coxiella burnetii Phase 1 IgG:

To determine detection of cross-reactive antibodies directed against different parameters sera were analyzed with Coxiella burnetii Phase 1 IgG and a commercially available anti-Coxiella burnetii Phase 1 IgG ELISA. Positive sera (10 sera each) for Brucella IgG, Mycoplasma pneumoniae IgG, Legionella pneumophila 1-7 IgG and Chlamydia IgG have been tested as well as sera positive for rheumatoid factor (RF) and anti-nuclear antibodies (ANA). Within this internal evaluation potential cross-reactivites with two Brucella positive serum samples have been observed. All reactivities have been confirmed by positive or borderline results in the reference assay. Other cross-reactivites cannot be ruled out in general.

Coxiella burnetii Phase 2 IgG:

To determine detection of cross-reactive antibodies directed against different parameters sera were analyzed with Coxiella burnetii Phase 2 IgG and a commercially available anti-Coxiella burnetii Phase 2 IgG ELISA. Positive sera (10 sera each) for Brucella IgG, Mycoplasma pneumoniae IgG, Legionella pneumophila 1-7 IgG and Chlamydia IgG have been tested as well as sera positive for rheumatoid factor (RF) and anti-nuclear antibodies (ANA). Within this internal evaluation potential cross-reactivites with one Legionella pneumophila 1-7 IgG and two Brucella IgG positive serum samples have been observed. All reactivities have been confirmed by positive or borderline results in the reference assay. Other cross-reactivites cannot be ruled out in general.

Coxiella burnetii Phase 2 IgM:

To determine detection of cross-reactive antibodies directed against different parameters sera were analyzed with Coxiella burnetii Phase 2 IgM and a commercially available anti-Coxiella burnetii Phase 2 IgM ELISA. Positive sera (10 sera each) for Brucella IgG, Mycoplasma pneumoniae IgG, Legionella pneumophila 1-7 IgG and Chlamydia IgG have been tested as well as sera positive for rheumatoid factor (RF) and anti-nuclear antibodies (ANA). Within this internal evaluation potential cross-reactivites with one Brucella IgM and one Legionella pneumophila 1-7 IgM positive serum sample have been observed. All reactivities have been confirmed by positive or borderline results in the reference assay. Other cross-reactivites cannot be ruled out in general.

9.4 Interfering Substances

Coxiella burnetii Phase 1 IgA/IgG and Coxella burnetii Phase 2 IgG/IgM

To determine the influence of interfering substances, sera with different reactivites were analyzed with the Coxiella burnetii Phase 1 IgA/IgG and Coxella burnetii Phase 2 IgG/IgM. No interferences have been been detected for sera with concentrations up to 2.00 g/L hemoglobin, 11.50 g/L lipemia/triglyceride oder 0.201 g/L bilirubin (conjugated and unconjugated). Other interfering substances cannot be ruled out in general.

10 SAFETY MEASURES

10.1 Statements of Warning

The IBL-America ELISA test kits is designed for use by professional use who are familiar with laboratory techniques. All kit reagents and human specimens should be handled carefully, using established laboratory techniques.

- This kit contains human blood components. Although all control- and cut-off sera have been tested and found negative for anti-HIV-ab, HBs-Ag (*Hepatitis B-Virus-surface Antigen*) and anti-HCV-ab, they should be considered potentially infectious.
- Do not pipette by mouth.
- Do not smoke, eat or drink in areas in which specimens or kit reagents are handled.
- Wear disposable gloves, laboratory coat and safety glasses while handling kit reagents or specimens. Wash hands thoroughly afterwards.
- Sample material and other potentially infectious material should be decontaminated after the test run.
- Reagents should be stored safely and be inaccessible to unauthorized access e.g. children.
- Stopping solution:  corrosive (C); causes acid burn (R34)

  Use safety glasses, gloves and laboratory coat while handling!

10.2 Disposal

Please observe the relevant statutory requirements!

10.3 Serious Incidents

Serious incidents that have occurred in connection with the product must be reported to the manufacturer, distributor or the competent authority.

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Manufactured for Immuno-Biological Laboratories Inc.
(IBL-America)
8201 Central Avenue, NE, Suite P
Minneapolis, MN 55432
Tel: 763-780-2955
Toll Free: 1-888-523-1246