

Declaration Ref No: DC21-0035

# **CE Declaration of Conformity**

According to Annex III of the IVD Directive 98/79/EC

We,

## **Atlas Medical**

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Declare our responsibility that the following product:

#### See Attached list

- Comply with all essential requirements (AnnexI) of the IVD Directive 98/79/EC. This
  compliance has been properly documented and covers the items listed in Annex I of the
  IVD Directive.
- This product is produced under Atlas quality system (ISO13485:2016) issued by GMED:

Certificate N<sup>0</sup>.: 36655 rev 1 Expiry Date: October 8 th.2023

Comply with the essential requirements of following standards (EN 18113-1, -2,-4:2011, EN ISO 15223:2016, EN ISO 23640:2015, EN ISO 14971:2019, ISO 2859/1:1999, EN ISO 13612:2002, EN ISO 13641:2002.

And Intended for In-Vitro Professional use only.

Manufacturer
Atlas Medical
Ludwig-Erhard-Ring 3
Blankenfelde-Mahlow, Germany.

Blankenfe	elde-Mahlow , G	Germany.	Atlas Medical  Atlas Medical	
Atlas	Issue date	Date of review	Quality Diagnostic  Management approval	MRXDO10F.10
Medical	March.2021	09.03.2021		08.02.2011



# **CE Declaration of Conformity**

# According to Annex III of the IVD Directive 98/79/EC

Product Description			
8.00.02.0.0100: ASO Latex Kit, 100 Tests (4ml Latex, 2x1.0ml controls).			
8.00.00.0.0100: CRP Latex Kit, 100 Tests (4 ml Latex, 2x1.0 ml Controls)			
8.00.04.0.0100: RF Latex Kit, 100 Tests (4ml Latex, 2x1.0ml controls)			
8.00.17.0.0100: D-Dimer Latex Kit, 100 Tests			
8.00.13.0.0300: Streptococcus Latex Kit, 6 Groups, 6x50 Tests (5x1.5ml Latex			
(A,B,C,G,F), 1x3ml Latex(D), 1x1.0ml Positive Control, 1x2ml Extraction Reagent E,			
1x1.5ml Extraction Reagent 1, 1x1.5ml Extraction Reagent 2, 2x2.5ml Extraction Reagent			
3. Stirring Sticks, Glass Slide).			

8.00.18.3.0500 : RPR Syphilis (Coarse Grain) Kit, 500 Tests (10 ml latex, 2x1ml control) Without card, stirring sticks.

8.00.18.3.1000 RPR Carbon Antigen (Coarse Grain) Kit, 1000 Tests (Reagent only).





# **CERTIFICAT**CERTIFICATE OF REGISTRATION

N° 36655 rev.1

# GMED certifie que le système de management de la qualité développé par

GMED certifies that the quality management system developed by

# ATLAS MEDICAL GmbH Ludwig-Erhard-Ring 3 15827 Blankenfelde-Mahlow GERMANY

pour les activités

for the activities

Conception et développement, fabrication et vente de dispositifs médicaux de diagnostic in vitro .

Design and Development, Manufacturing and Sales of in vitro diagnostic medical devices.

réalisées sur le(s) site(s) de performed on the location(s) of

Voir addendum

See addendum

est conforme aux exigences des normes internationales complies with the requirements of the international standards

ISO 13485: 2016

Début de validité / Effective date October 9th, 2020 (included) Valable jusqu'au / Expiry date : October 8th, 2023 (included)

Etabli le / Issued on : October 8th, 2020

On be

On behalf of the President Béatrice LYS

**Technical Director** 

DocuSigned by:

GMED N° 36655-1

Ce certificat est délivré selon les règles de certification GMED / This certificate is issued according to the rules of GMED certification

Renouvelle le certificat 36655-0

RECEITIFICATION DE SYSTEMES DE MANAGEMENT
A Loste des sites accrédit et et portée disponible su www.cofrac.fr

GMED •

**GMED** • Société par Actions Simplifiée au capital de 300 000 € • Organisme Notifié/Notified Body n° 0459 Siège social : 1, rue Gaston Boissier - 75015 Paris • Tél. : 01 40 43 37 00 • gmed.fr



Addendum au certificat n° 36655 rev. 1 page 1/1 Addendum of the certificate n° 36655 rev. 1 Dossier / File N°P601408

#### Ce certificat couvre les activités et les sites suivants :

This certificate covers the following activities and sites:

#### French version:

Conception et développement, fabrication et vente de dispositifs médicaux de diagnostic *in vitro* à usage professionnel et/ ou d'autodiagnostic, dans les domaines du groupage sanguin, de la microbiologie, de la biochimie, de la toxicologie, de l'oncologie, de la cardiologie, de l'histologie, de l'endocrinologie et des maladies infectieuses, dans les techniques d'Agglutination/ ELISA/ Tests rapides/ Colorimétrie/ Disques antibiotiques.

#### English version:

Design and Development, Manufacturing and Sales of in vitro diagnostic medical devices for professional use and/or for self-testing, in the field of Immunohematology, Microbiology, Biochemistry, Toxicology, Oncology, Cardiology, Histology, Endocrinology Biosensors and Infectious diseases, in techniques of Agglutination/ELISA/Rapid tests/Colorimetry/Antibiotic disks.

ATLAS MEDICAL GmbH Ludwig-Erhard-Ring 3 15827 Blankenfelde-Mahlow GERMANY

French version:

Siège social, responsable de la mise sur le marché

English version:

Headquarter, legal manufacturer

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Sahab Industrial Zone Area King Abdullah II Industrial City Amman 11512 JORDAN

French version:

Conception, fabrication et contrôle final

English version:

Design, manufacture and final control

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

William James House Cowley Road, Cambridge, CB OWX United Kingdom

French version:

Contact réglementaire

English version:

Regulatory Administration

\*\*\*\*\*\*\*\*\*\*\*\*

3 sites / 3 sites

Bratrice Lys

EF33BDA9BAA04A3...

On behalf of the President Béatrice LYS Technical Director



Contract No: CO17029001

Date: 05/08/2017

# LETTER OF AGREEMENT

Manufacturer:

**Atlas Medical** 

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Agent:

Sanmedico SRL

Str. Petricani 88/1, office 10, MD-2059 mun, Chisinau, Moldova

Tel: 022623032 Mob: 060155788

http://www.sanmedico.md

Atlas Medical, hereby appoint the above mentioned agent to import, register and distribute Atlas Medical products in Moldova.

# Appointment conditions:

- 1. This appointment is valid for 1 year from the above mentioned date.
- 2. Either party can cancel this appointment by giving the other party a 60 day notice.

On behalf of the Manufacturer

**General Manager** 

Suzan Shebli

Head Office William James House, Cowley Rd, Cambridge, CB4 OWX, United Kingdom.

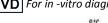
Tel: +44 (0) 1223 858910, Fax: +44 (0) 1223 858524 Middle East Site: King Abdullah the Second Industrial Estate, Street 19, Sahab Free Zone Area, P.O. Box: 204, Amman 11512, Jordan





## **ANTISTREPTOLYSIN-O (ASO) LATEX SLIDE TEST**

For the qualitative and quantitative measurement of antibodies to Antistreptolysin-O in human serum.



IVD For in -vitro diagnostic and professional use only



#### INTENDED USE

ATLAS ANTISTREPTOLYSIN-O (ASO) latex slide Test is used for the qualitative and quantitative measurement of antibodies to Antistreptolysin-O in human serum.

#### INTRODUCTION

The group A ß-hemolytic streptococci produces various toxins that can act as antigens. One of these exotoxins streptolysin-O, was discovered by Todd in 1932.

A person infected with group A -hemolytic streptococci produces specific antibodies against these exotoxins, one of which is antistreptolysin-O. The quantity of this antibody in a patient's serum will establish the degree of infection due to the -hemolytic streptococcal.

The usual procedure for the determination of the antistreptolysin titer is based on the inhibitory effect that the patient's serum produces on the hemolytic power of a pretitrated and reduced streptolysin-O. However, the antigenantibody reaction occurs independently of the hemolytic activity of streptolysin-O. This property enables the establishment of a qualitative and quantitative test for the determination of the antistreptolysin-O by agglutination of latex particles on slide.

#### PRINCIPLE

ASO test method is based on an immunologic reaction between streptococcal exotoxins bound to biologically inert latex particles and streptococcal antibodies in the test sample. Visible agglutination occurs when increased antibody level, are present in the test specimen.

#### MATERIALS **MATERIALS PROVIDED**

- ASO Latex Reagent: Latex particles coated with streptolysin O, pH, 8,2. Preservative
- ASO Positive Control(Red cap): Human serum with an ASO concentration > 200 IU/mL.Preservative
- ASO Negative Control (Blue cap) Animal serum. Preservative
- Reaction Slide.
- Stirring Sticks.

#### MATERIALS REQUIRED BUT NOT PROVIDED

- Timer.
- Test Tubes 12x75mm.
- Test Tube Rack.
- Serological pipettes.
- High intensity light.
- Saline Solution, 0.9% NaCL.

#### **PRECAUTIONS**

- All reagents contain 0.1% (w/v) sodium azide as a preservative. Store all reagents at 2-8°C. DO NOT FREEZE.
- Reagents containing sodium azide may be combined with copper and lead plumbing to form highly explosive metal azides. Dispose of reagents by flushing with large amounts of water to prevent azide build-up.
- For In Vitro diagnostic use.
- Positive and negative controls prepared using human serum found negative for hepatitis B surface antigen (HBsAg) and HIV-III by FDA required test; however, handle controls as if potentially infectious.

#### REAGENT STORAGE AND STABILITY

- Reagents are stable until specified expiry date on bottle label when stored refrigerated (2-8°C).
- DO NOT FREEZE.
- The ASO Latex Reagent, once shaken must be uniform without visible clumping. When stored refrigerated, a slight sedimentation may occur and should be considered normal.
- Do not use the latex reagent or controls if they become contaminated.

#### SPECIMEN COLLECTION AND STORAGE

- Use fresh serum collected by centrifuging clotted blood.
- If the test cannot be carried out on the same day, store the specimen for 7 days at 2-8(C and for 3 months at -20(C.

- For longer periods the sample must be frozen.
- As in all serological tests, hemolytic or contaminated serum must not be used.
- DO NOT USE PLASMA.

#### **PROCEDURE**

#### Qualitative method

- 1. Allow the reagents and samples to reach room temperature. The sensitivity of the test may be reduced at low temperatures.
- 2. Place 50 µL of the sample and one drop of each Positive and Negative controls into separate circles on the slide
- 3. Mix the ASO-latex reagent vigorously or on a vortex mixer before using and add one drop (50 µL) next to the sample to be tested.
- 4. Mix the drops with a stirrer, spreading them over the entire surface of the circle. Use different stirrers for each sample.
- 5. Place the slide on a mechanical rotator at 80-100 r.p.m. for 2 minutes. False positive results could appear if the test is read later than two minutes.

#### Semi-quantitative method

- 1. Make serial two fold dilutions of the sample in 9 g/L saline solution.
- 2. Proceed for each dilution as in the qualitative method.

#### QUALITY CONTROL

Positive and Negative Controls should be included in each test batch.

Acceptable performance is indicated when a uniform milky suspension with no agglutination is observed with the ASO Negative Control and agglutination with large aggregates is observed with the ASO Positive Control.

#### RESULTS

#### A.QUALITATIVE TEST:

A negative reaction is indicated by a uniform milky suspension with no agglutination as observed with the ASO Negative Control.

A positive reaction is indicated by any observable agglutination in the reaction mixture. The specimen reaction should be compared to the ASO Negative Control (Fig. 1).

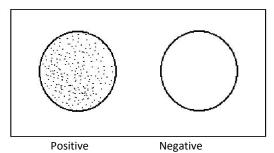


Figure 1

# B.QUANTITATIVE TEST

A positive reaction is indicated by any observable agglutination in the reaction mixture. Record the last dilution showing a positive reaction. Concentration of ASO can be determined by multiplying the last positive dilution factor of the sample with the concentration of the positive control (200 IU/ml).

The titer of the serum is the reciprocal of the highest dilution which exhibits a positive reaction.

IU/ml of sample = conc. of positive control (200) x specimen titer

<u>DILUTION</u>	<u>IU/ml</u>
1:1	200
1:2	400
1:4	800
1:8	1600
Ftc	

#### REFERENCE VALUES

Up to 200 IU/mL(adults) and 100 IU/mL (children < 5 years old)<sup>6</sup>. Each laboratory should establish its own reference range.

#### PERFORMANCE CHARACTERISTICS

Analytical sensitivity:

200 (±50) IU/ml.

PROZONE EFFECT

No prozone effect was detected up to 1500IU/ml.

**SENSITIVITY** 

98%.

**SPECIFICITY** 

97%.

#### **INTERFERENCES**

#### **NON INTERFERING SUBSTANCES:**

- Hemoglobin (10g/dl)
- Bilirubin(20mg/dl)
- Lipemia(10g/dl)

Other substances may interfere

#### REFERENCES

- Haffejee . Quarterly Journal of Medicine 1992. New series 84; 305: 641-658.
- 2. Ahmed Samir et al. Pediatric Annals 1992; 21: 835-842.
- 3. Spaun J et al. Bull Wld Hlth Org 1961; 24: 271-279.
- 4. The association of Clinical Pathologists 1961. Broadsheet 34.
- 5. Picard B et al. La Presse Medicale 1983; 23: 2-6.
- 6. Klein GC. Applied Microbiology 1971; 21: 999-1001.
- Young DS. Effects of drugs on clinical laboratory test, 4th ed. AACC Press, 1995.

# **ATLAS Medical**

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#### PPI003A01

#### Rev H (09.09.2017)

REF	Catalogue Number		Store at
IVD	For In-Vitro Diagnostic use	$\triangle$	Caution
Σ	Number of tests in the pack	(i	Read product insert before use
LOT	Lot (batch) number		Manufacturer
Ţ	Fragile, handle with care	><	Expiry date
	Manufacturer fax number	<b>®</b>	Do not use if package is <b>damaged</b>
	Manufacturer telephone		



#### ATLAS C-REACTIVE PROTEIN (CRP) LATEX KIT

For the qualitative and semi-quantitative measurement of C-reactive protein (CRP) in human serum.



**IVD** For in -vitro diagnostic and professional use only



#### **INTENDED USE**

Atlas C-Reactive Protein (CRP) is used to measure the CRP in human serum qualitatively and semi- quantitatively.

#### INTRODUCTION

C-reactive protein (CRP), the classic acute-phase of human serum, is synthesized by hepatocytes. Normally, it is present only in trace amounts in serum, but it can increase as much as 1,000-fold in response to injury or infection. The clinical measurement of CRP in serum therefore appears to be a valuable screening test for organic disease and a sensitive index of disease activity in inflammatory, infective and ischemic conditions. MacLeod and Avery found that antibody produced against purified CRP provided a more sensitive test than the C-polysaccharide assay. Since that time a number of immunological assays have been devised to measure CRP such as capillary precipitation, double immunodiffusion and radical immunodiffusion.

The CRP reagent kit is based on the principle of the latex agglutination assay described by Singer and Plotz. The major advantage of this method is the rapid two (2) minute reaction time.

#### **PRINCIPLE**

The CRP reagent kit is based on an immunological reaction between CRP Antisera bound to biologically inert latex particles and CRP in the test specimen. When serum containing greater than 6 mg/L CRP is mixed with the latex reagent, visible agglutination occurs.

#### **MATERIALS**

#### **MATERIALS PROVIDED**

 CRP Latex Reagent:Latex particles coated with goat IgG anti-human CRP, pH 8.2 MIX WELL BEFORE USE.

- CRP Positive Control Serum: A stabilized pre-diluted human serum containing >20mg/L CRP.
- CRP Negative Control Serum: A stabilized pre-diluted animal serum.
- Glass Slides.
- Stirring Sticks.

#### MATERIALS REQUIRED BUT NOT PROVIDED

- Mechanical rotator with adjustable speed at 80-100 r.p.m.
- Vortex mixer.
- Pippetes 50 uL.
- Glycine Buffer (20x): add one part to nineteen parts of distilled water before use.

#### **PRECAUTIONS**

- Reagents containing sodium azide may be combined with copper and lead plumbing to form highly explosive metal azides. Dispose of reagents by flushing with large amounts of water to prevent azide buildup.
- For In Vitro diagnostic use.
- Positive and negative controls prepared using human serum found negative for hepatitis B surface antigen (HBsAg) by FDA required test; however. handle controls as if potentially infectious.
- Accuracy of the test depends on the drop size of the latex reagent (40µl). Use only the dropper provided with the latex and hold perpendicularly when dispensing.
- Glass slides should be thoroughly rinsed with water and wiped with lint-free tissue after each use.

#### STORAGE AND STABILITY

Reagents are stable until specified expiry date on bottle label when stored refrigerated (2 - 8°C).

#### DO NOT FREEZE.

- The CRP latex reagent, once shaken must be uniform without visible clumping. When stored refrigerated, a slight sedimentation may occur and should be considered normal.
- Do not use the latex reagent or controls if they become contaminated.

#### SPECIMEN COLLECTION AND STORAGE

 Use fresh serum collected by centrifuging clotted blood.

- If the test cannot be carried out on the same day, store the specimen for 7 days at 2-8 °C and for 3 months at -20°C.
- For longer periods the sample must be frozen.
- As in all serological tests, hemolytic or contaminated serum must not be used.
- Do not use plasma.

#### **PROCEDURE**

#### A.QUALITATIVE TEST:

- 1. Allow the reagents and samples to reach room temperature. The sensitivity of the test may be reduced at low temperatures.
- 2. Place 40 µL of the sample and one drop of each Positive and Negative controls into separate circles on the slide test.
- 3. Mix the CRP-latex reagent vigorously or on a vortex mixer before using and add one drop (40 µL) next to the samples to be tested.
- 4. Mix the drops with a stirrer, spreading them over the entire surface of the circle. Use different stirrers for each sample.
- 5. Place the slide on a mechanical rotator at 80-100 r.p.m. for 2 minutes. False positive results could appear if the test is read later than two minutes.

#### **B.SEMI-QUANTITATIVE TEST:**

- 1. Make serial two fold dilutions of the sample in 9 g/L saline solution.
- 2. Proceed for each dilution as in the qualitative method.

#### **QUALITY CONTROL**

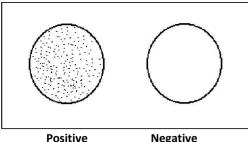
Positive and Negative controls are recommended to monitor the performance of the procedure, as well as a comparative pattern for a better result interpretation.

All result different from the negative control result, will be considered as a positive.

#### INTERPRETATION OF RESULTS **A.QUALITATIVE TEST:**

A **negative** reaction is indicated by a uniform milky suspension with no agglutination as observed with the CRP Negative Control.

A **positive** reaction is indicated by any observable agglutination in the reaction mixture. The specimen reaction should be compared to the CRP Negative Control (Fig. 1).



**Negative** 

Figure 1

#### **B. Semi-QUANTITATIVE TEST:**

The approximate CRP concentration in the patient sample is calculated as follow:

6×CRP titer = ---- mg/L

#### **INTERFERENCES**

#### NONE INTERFERING SUBSTANCES:

- Hemoglobin (10g/dl)
- Bilirubin(20mg/dl)
- Lipemia(10g/dl)
- Other substances interfere, such as RF (100IU/ml).

#### NOTE

- High CRP concentration samples may give negative results .Retest the sample again using a drop of 20µl.
- The strength of agglutination is not indicative of the CRP concentration in the samples tested.
- Clinical diagnosis should not be made on findings of a single test result, but should integrate both clinical and laboratory data.

#### LIMITATIONS

- Reaction time is critical. If reaction time exceeds two (2) minutes, drying of the reaction mixture may cause false positive results.
- 2. Freezing the CRP Latex Reagent will result in spontaneous agglutination.
- Intensity of agglutination is not necessarily indicative of relative CRP concentration; therefore, screening reactions should not be graded.
- 4. A false negative can be attributed to a prozone phenomenon (antigen excess). It is recommended, therefore, to check all negative sera by retesting at a 1:10 dilution with glycine buffer.

#### REFERENCE VALUES

Up to 6 mg/L. Each laboratory should establish its own reference range.

#### PERFORMANCE CHARACTERISTICS

- Sensitivity: 6(5-10) mg/L
- **Prozone effect:** No prozone effect was detected up to 1600 mg/L
- Diagnostic sensitivity: 95.6 %.
- Diagnostic specificity: 96.2 %.

#### REFERENCES

- Pepys, M.B.. Lancet 1:653 (1981).
- 2. Werner, M.. Clin.Chem. Acta 25:299 (1969).
- MacLeod, C.M., et. al.. J. Exp. Med 73:191 (1941).
- Wood, HF., et. al.. J. Clin. Invest. 30: 616 (1951).
- Mancini, G., et. al. Immunochemistry 2:235 (1965).
- Singer, J.M., et. al.. Am. J. Med 21: 888 (1956).
- 7. Fischer, C.L., Gill,. C.W.. In Serum Protein Abnormalities. Boston, Little, Brown and Co., (1975).

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#### PPI005A01

#### Rev H (06.06.2017)

REF	Catalogue Number	nber Store	
IVD	For In-Vitro Diagnostic use	$\triangle$	Caution
Σ	Number of tests in the pack	[]i	Read product insert before use
LOT	Lot (batch) number		Manufacturer
Ī	Fragile, handle with care	2	Expiry date
	Manufacturer fax number	<b>®</b>	Do not use if package is damaged
	Manufacturer telephone number		



#### ATLAS RHEUMATOID FACTOR (RF) LATEX KIT

latex slide test for the qualitative and semi-quantitative measurement of RF in human serum.

IVD For In-Vitro diagnostic and professional use only



#### **INTENDED USE**

A latex slide test for the qualitative and semi-quantitative measurement of RF in human serum.

#### INTRODUCTION

Rheumatoid factors (RF) are antibodies directed against antigenic sites in the Fc fragment of human and animal IgG . Their frequent occurrence in rheumatoid arthritis makes them useful for diagnosis and monitoring of the disease.

One method used for rheumatoid factor detection is based on the ability of rheumatoid arthritis sera to agglutinate sensitized sheep red cells, as observed by Waaler and Rose A more sensitive reagent consisting of biologically inert latex beads coated with human gamma globulin was later described by Singer and Plotz. The RF kit is based on the principle of the latex agglutination assay of Singer and Plotz .The major advantage of this method is rapid performance (2 minute reaction time) and lack of heterophile antibody interference.

#### PRINCIPLE

The RF reagent is based on an immunological reaction between human IgG bound to biologically inert latex particles and rheumatoid factors in the test specimen. When serum containing rheumatoid factors is mixed with the latex reagent, visible agglutination occurs.

#### **MATERIALS**

#### **MATERIALS PROVIDED**

- RF Latex Reagent: Latex particles coated with human gamma-globulin, pH, 8,2. Preservative. Contains N, N-dimethylformamide.
- RF Positive Control Serum: Human serum with a RF concentration > 30 IU/mL.Preservative.

- RF Negative Control Serum:Animal serum.
   Preservative.
- Reaction Slide
- Stirring sticks

#### MATERIALS REQUIRED BUT NOT PROVIDED

- Timer
- Test Tubes (for dilution)
- Serological pipettes (for sample addition and for dilution)
- Rotator (optional)
- Glycine Buffer (20x): add one part to nineteen parts of distilled water before use.

#### **PRECAUTIONS**

- All reagents contain 0.1 %( w/v) sodium azide as a preservative.
- Reagents containing sodium azide may be combined with copper and lead plumbing to form highly explosive metal azides. Dispose of reagents by flushing with large amounts of water to prevent azide buildup.
- For In Vitro diagnostic use.
- Positive and negative controls prepared using human serum found negative for hepatitis B surface antigen (HBsAg) by FDA required test; however, handle controls as if potentially infectious.
- Accuracy of the test depends on the drop size of the latex reagent (40µl). Use only the dropper supplied with latex and hold it perpendicularly when dispensing.
- Use a clean pipette tip and stirring stick for each specimen, and glass slides should be thoroughly rinsed with water and wiped with lint-free tissue after each use.
- Check reactivity of the reagent using the controls provided.

#### STORAGE AND STABILITY

- Reagents are stable until specified expiry date on bottle label when stored refrigerated (2-8°C).
- Do not freeze.
- The RF latex reagent, once shaken must be uniform without visible clumping. When stored refrigerated, a slight sedimentation may occur and should be considered normal.
- Do not use the latex reagent or controls if they become contaminated.

#### SPECIMEN COLLECTION AND STORAGE

- Use fresh serum collected by centrifuging clotted blood.
- If the test cannot be carried out on the same day, store the specimen for 7 days at 2-8°C and for 3 months at -20°C.
- As in all serological tests, hemolytic or contaminated serum must not be used.
- Do not use PLASMA.

#### **PROCEDURE**

#### Qualitative method

- Allow the reagents and samples to reach room temperature. The sensitivity of the test may be reduced at low temperatures.
- 2. Place 50  $\mu L$  of the sample and one drop of each Positive and Negative controls into separate circles on the slide test.
- 3. Mix the RF-latex reagent rigorously or on a vortex mixer before using and add one drop (50  $\mu$ L) next to the sample to be tested.
- Mix the drops with a stirrer, spreading them over the entire surface of the circle. Use different stirrers for each sample.
- 5. Place the slide on a mechanical rotator at 80-100 r.p.m. for 2 minutes. False positive results could appear if the test is read later than two minutes.

#### Semi-quantitative method

- Make serial two fold dilutions of the sample in 9 g/L saline solution.
- 2. Proceed for each dilution as in the qualitative method.

#### READING AND INTERPRETATION

Examine macroscopically the presence or absence of visible agglutination immediately after removing the slide from the rotator. The presence of agglutination indicates a RF concentration equal or greater than 8 IU/mL (Note 1).

The titer, in the semi-quantitative method, is defined as the highest dilution showing a positive result.

#### **CALCULATIONS**

The approximate RF concentration in the patient sample is calculated as follows:

8 x RF Titer = IU/mL

#### INTERFERENCES

#### NON INTERFERING SUBSTANCES:

- Hemoglobin (10g/dl)
- Bilirubin(20mg/dl)
- Lipemia(10g/dl)

Other substances may interfere.

#### **QUALITY CONTROL**

- 1. RF Positive and Negative Control should be included in each test batch.
- Acceptable performance is indicated when a uniform milky suspension with no agglutination is observed with the RF Negative Control and agglutination with large aggregates is observed with the RF Positive Control.

#### PERFORMANCE CHARACTERISTICS

#### Analytical sensitivity

8(6-16) IU/ml, under the described assay conditions.

#### **PROZONE EFFECT**

No prozone effect was detected up to 1500 IU/ml.

#### **DIAGNOSTIC SENSITIVITY**

100%.

#### **DIAGNOSTIC SPECIFICITY**

100%.

The diagnostic sensitivity and specificity have been obtained using 118 samples compared with the same method of a computer.

#### LIMITATIONS

- Reaction time is critical. If reaction time exceeds 2 minutes, drying of the reaction mixture may cause false positive result.
- Freezing the RF Latex Reagent will result in spontaneous agglutination.
- Intensity of agglutination is not necessarily indicative of relative RF concentration; therefore, screening reactions should not be graded.
- Increased levels of RF may be found in some diseases other than rheumatoid arthritis such as infectious mononucleosis, sarcodosis, lupus erythrematosus, Sjogren's syndrome.
- Certain patients with rheumatoid arthritis will not have the RF present in their serum.

- The incidence of false positive results is about 3-5 %.Individuals suffering from infectious mononucleosis, hepatitis, syphilis as well as elderly people may give positive results.
- Diagnosis should not be solely based on the results of latex method but also should be complemented with a Waaler Rose test along with the clinical examination.

#### REFERENCE VALUES

Up to 8 IU/mL. Each laboratory should establish its own reference range.

#### NOTES

 Results obtained with a latex method do not compare with those obtained with Waaler Rose test. Differences in the results between methods do not reflect differences in the ability to detect rheumatoid factors.

#### REFERENCES

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