QUALITY CONTROL PROCEDURE

Positive and Negative controls should be included in each test series. The Positive control should produce visible agglutination; and Negative control should produce no agglutination.

LIMITATIONS OF THE PROCEDURE

1. The results of this test SHOULD NOT be used as a single diagnostic tool to make a clinical diagnosis. Instead, the test results must be evaluated together with other clinical findings and observed symptoms to aid in the final diagnosis.
2. This test is designed to be performed by hand rotation. The use of a mechanical rotator could yield false positive/negative results.
3. Strength of agglutination in screening test is not indicative of an actual titer of the RF.
4. Reaction time longer than 3 minutes may produce apparent false positive reactions due to a drying effect.
5. Strongly lipemic or contaminated sera can cause false positive reactions.
6. Only serum should be used in this test.

EXPECTED VALUES

The clinical significance of RF determination consists of differentiating between rheumatoid arthritis, in which the rheumatoid factor has been demonstrated in the serum of approximately 80% of the cases examined, and rheumatic fever in which the rheumatoid factor is almost always absent[8]. The RF test is more frequently positive in active processes of greater duration than in diseases, which are less active or are still in early stages.

Approximately 3.5% of known rheumatoid patients do not react in the screening test, on the other hand, 2% of sera from apparently healthy individuals gave a positive RF reaction.

PERFORMANCE CHARACTERISTICS

The performance of the PULSE RF TEST was compared with another competitor's test in a clinical trial. The PULSE RF TEST was found to have a sensitivity of 100% and a specificity of 95%.

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Rheumatoid Factor (RF) Latex Test

INTENDED USE

The PULSE RF LATEX TEST (PULSE RF TEST) is intended to be used for the qualitative screening and semi-quantitative determination of Rheumatoid Factor (RF) in serum as an aid in the diagnosis of Rheumatoid Arthritis.

SUMMARY AND PRINCIPLES

Rheumatoid Arthritis is a chronic systemic disease generally characterized by swelling and pain in the joints and by inflammatory and degenerative processes involving cartilage, synovial membrane or muscle tissue. The onset of this disease is in adults in their thirties and forties. While no specific cure has been found, early therapy helps in halting or minimizing irreversible damage to the joints. For this reason, prompt diagnosis is of importance.

A characteristic of rheumatoid arthritis is the presence in the blood and in synovial fluid of a reactive group of proteins collectively known as the Rheumatoid Factors[1,2]. These are macroglobulins having a molecular weight of about one million. In the opinion of many investigators[3] the RF are antibodies directed against "altered" human gamma globulin[4-6]. The RF are found in 70-100% of cases of definite rheumatoid arthritis depending on the test procedure used to detect them. Because of this widespread incidence of RF, its demonstration is a useful laboratory criterion for the diagnosis of suspected cases of rheumatoid arthritis. By comparison the occurrence of RF in osteoarthritis or rheumatic fever is less than 2% and 3% respectively. It should be noted that incidence of RF have been reported in a variety of non-rheumatic diseases such as pulmonary tuberculosis, bacterial endocarditis, syphilis, as well as others. A significant incidence of RF in the aged has also been observed.

The principle of this test is based on the immunologic reaction between the RF in serum with the corresponding IgG coated onto latex particles resulting in visible agglutination.[7]

MATERIALS SUPPLIED

RF Latex Reagent: Contains a suspension of polystyrene latex particles coated with human IgG in a stabilized buffer with less than 0.1% sodium azide as preservative.

RF Positive Control: Human serum containing more than 20 IU/ml RF with less than 0.1% sodium azide as preservative.

RF Negative Control: Human serum that has been diluted and stabilized with buffer and contains less than 0.1% sodium azide as

Glycine-saline Buffer: To be diluted 1:20 with distilled water.
(20X) Concentrate

Disposable pipettes and test slides.

Additional Items Required:
Physiological saline, serological pipettes, 12 x 75 mm test tubes and timing device.

STORAGE & STABILITY

When not in use, store reagents and controls at 2 - 8 degree Celsius. DO NOT FREEZE. Prior to use, allow reagents and controls to warm up to room temperature. Expiration date is specified on the kit label and on each vial. Biological indication of product instability is evidenced by inappropriate reaction of the latex reagent with the corresponding positive and negative control sera.

PRECAUTIONS

This product is for In Vitro Diagnostic Use Only.
Each donor unit used in the preparation of this product has been tested by an FDA approved method and found non-reactive for the presence of HbsAg and antibody to HIV Virus. Because no known test method can offer complete assurance that hepatitis B virus, HIV Virus, or other infectious agents are absent, all human blood based products should be handled in accordance with good laboratory practices. The preservative sodium azide may react with metal plumbing to form explosive metal oxides. In disposal, flush with a large volume of water to prevent metal azide build up.

SPECIMEN COLLECTION

The test should be performed on fresh serum specimens only. Plasma should not be used because fibrinogen may cause nonspecific agglutination of the latex particles. Fresh specimens (less than 24 hours) should be used in performing the test. If testing is delayed, specimens should be refrigerated (or frozen where applicable). Bacterial contamination may cause protein denaturation and false positive agglutination.

PROCEDURE

A. Method I (Qualitative)

1. Bring all test reagents and serum specimens to room temperature.
2. Gently shake the RF latex vial to disperse and suspend latex particles.
3. Positive and negative controls should be tested with each series of test.
4. Using the disposable pipette provided, place one drop of test serum onto a circle on the slide. Use a separate disposable pipette for each test serum. Important: The Pulse RF Latex Reagent must be agitated well for about 10 seconds prior to using on each day's testing. Do not use a vortex mixer. Deliver one drop of RF Latex to each circle that contains specimens on the slide. Spread the resulting mixture by using the paddle end of the pipette. Do not use the same paddle end to mix each test serum or control as this will cause cross-contamination.
5. Gently tilt and rotate slide by hand for three minutes.
6. Observe for macroscopic clumping using the indirect oblique light source.
7. Compare the reaction of the test serum to the RF positive and negative control sera.

B. Method II (Semi-Quantitative)

1. For each test serum to be titrated, set up a least 6 test tubes (12 x 75 mm) and label1:2, 1:4, 1:8, 1:16, 1:32, 1:64, etc.
2. To each tube add 0.2 ml of Diluted Glycine-Saline Buffer
3. To Tube No. 1 add 0.2 ml of undiluted test serum.
4. Serially make two-fold dilutions by mixing contents of Tube No. 1 with pipette and transferring 0.2 ml to Tube No. 2. Repeat serial transfers for each tube. For the 6 tubes, the dilutions range from 1:2 to 1:64. If required, additional serum dilutions can be added.
5. Repeat steps 3 to 7 as given in Method I (Qualitative).

RESULTS

Qualitative

Positive Result: Agglutination
Negative Result: Smooth milky suspension

Since negative results may be caused by antigen excess, the test should be repeated using a diluted serum sample in case prozone effect is suspected.

Semi-Quantitative

Sera that are positive in the screening test should be retested in the titration test to provide verification for borderline interpretations. The greatest dilution of test sample showing agglutination is considered the endpoint. Multiplication of the dilution factor by 20 IU/ml will yield the approximate level of RF present. The following table is only shown as an example for the determination of RF concentration in specimen. Actual specimen will have RF concentrations higher or lower than the levels indicated in this table.

DILUTIONS	CONCENTRATION (IU/ml)
1:1 (neat specimen)	20
1:2	40
1:4	80
1:8	160
1:16	320
1:32	640