

Exercise 8: Rheumatoid Factor Testing**Objectives:**

1. State, select and evaluate appropriate specimens for rheumatoid factor testing.
2. Perform latex agglutination tests for the detection of rheumatoid factor to obtain control and patient results that match instructor values with 100% accuracy.
3. Evaluate reagent package inserts and state:
 - a. the substance being analyzed,
 - b. the principle of the procedure,
 - c. the expected value,
 - d. significance of abnormal results,
 - e. limitations of the procedure, and
 - f. troubleshooting procedures to follow when control results are unacceptable.
4. Appropriately record and report results as instructed.
5. State the principle of the test for rheumatoid factor.
6. Define “rheumatoid factor”.
7. State the reason that some manufacturers recommend diluting the sample prior to testing.
8. List 5 limitations of the test for rheumatoid factor.
9. Utilize lecture notes, textbook and laboratory (including product insert) information to correctly answer study questions.

Introduction:

Rheumatoid arthritis (RA) is a chronic inflammatory disease affecting primarily the joints and periarticular tissues. For many years it has been known that several abnormal proteins circulate in the blood of patients with RA. These proteins, because of their obvious correlation with the disease, became known as rheumatoid factor (RF). Research of these proteins has characterized them as usually being a group of IgM class immunoglobulins that interact with antigenic determinants on human IgG molecules (i.e., they are anti-antibodies). Rheumatoid factor is detected in 60-80% of cases of diagnosed rheumatoid arthritis.

Principle:

Rheumatoid factor (RF) is an anti-antibody, which in-vitro, is detected by its ability to agglutinate latex particles (or red blood cells) coated with human IgG. RF in patient sample, if present, will attach to the IgG coating the latex particles. Agglutination of the latex particles is a positive result indicating the presence of RF. Review the principle of the specific kit being used in this laboratory.

Materials:

1. Rheumatoid factor test kit(s).
2. Patient and control serum specimens.
3. Timer
4. Other materials as directed by reagent product insert(s).

Procedure:

See reagent product insert(s).

Interpretation:

Agglutination of latex particles is considered a positive reaction, indicating the presence of rheumatoid factor at a significant and detectable level. Consult the reagent product insert(s) for specific information.

Expected Results:

Although the diagnosis of rheumatoid arthritis is based largely on clinical findings, the demonstration of the presence of rheumatoid factor is useful to support the diagnosis, evaluate the severity and course of the disease. Several manufacturers recommend testing the patient sample diluted and undiluted to detect a clinically significant amount of Rheumatoid Factor. If the undiluted is positive and the diluted is negative the test is considered negative. Consult the reagent product insert(s) for further interpretation.

Limitations:

1. Rheumatoid Factor is not detected in all patients diagnosed with Rheumatoid Arthritis.
2. Rheumatoid Factor may be detected in increased amounts in patients with infectious mononucleosis, sarcoidosis, systemic lupus erythematosus, Sjogren.'s syndrome, TB or leprosy, and other conditions of acute or chronic immune response. The significance of a positive result should be interpreted with caution. Testing should be done to confirm diagnosis of Rheumatoid Arthritis.
3. Procedure must be followed carefully and results read at the appropriate time. Reading after the specified time may result in mis-interpretation due to drying of specimen/reagents.
4. Some products may produce questionable results from hemolyzed, lipemic or contaminated specimens. Consult individual reagent product insert for information.
5. Avoid contamination of reagent or reagent dispensing dropper.

**Laboratory 8: Testing for Rheumatoid Factor
Recording Results**

Name _____

Date _____

Test Kit Name _____

Manufacturer _____

Lot Number _____

Expiration Date _____

Package Insert Revision Date _____

******State the interpretation (i.e. positive or negative).***

Patient Name and Identification Number	Result
1.	
2.	
Controls	
Positive	
Negative	

1. Based on the control results, can these patient results be reported? (circle one) **Yes** **No**
If “no”, explain why.
2. Why do some manufacturers recommend testing the sample diluted and undiluted? (1 point)
3. If testing can not be performed immediately, how should specimens be stored? (1 point)
4. According to the specific product insert, why are plasma specimens not acceptable? (1 point)
5. List 2 diseases which may cause a false positive reaction in this test. (2 points)
6. State 2 limitations of this procedure other than false positive due to other diseases. (2 points)
7. Describe “rheumatoid factor”.
8. In your own words, briefly state the principle of this test kit including the appearance of positive and negative reactions. (2 points)