

## **Rheumatoid Factor (RF) Testing**

by latex agglutination

### **Objectives:**

1. Follow instructions of the reagent package inserts to 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 to determine the substance being analyzed, the principle of the procedure, the expected value, significance of abnormal results, limitations of the procedure, and troubleshooting procedures to follow if / when control results are unacceptable.
4. Appropriately record and report results as instructed.
5. Utilize lecture notes, textbook and laboratory (including product insert) information to 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. Consult the reagent product insert(s) for further interpretation.

**Limitations:**

1. RF is not detected in all patients diagnosed with RA.
2. RF 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 RA.
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: Rheumatoid Factor Testing by latex agglutination**  
Results and Study Questions

Name \_\_\_\_\_

Date \_\_\_\_\_

Test Kit Name \_\_\_\_\_

Manufacturer \_\_\_\_\_

Lot Number \_\_\_\_\_

Expiration Date \_\_\_\_\_

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

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

Questions are worth one point, unless otherwise indicated.

1. Based on the control results, can these patient results be reported? (circle one) **Yes** **No**  
If “no”, explain why.
2. Why is the specimen diluted prior to performing the procedure?
3. If testing can not be performed immediately, how should specimens be stored?
4. State 2 limitations of this procedure.
5. According to the specific product insert, why are plasma specimens not acceptable?
6. Describe “rheumatoid factor”.
7. In your own words, briefly state the principle of this test kit including the appearance of positive and negative reactions. (2 points)