Medical Laboratory Techniques Department

Lab 9: Rheumatoid Factor Test

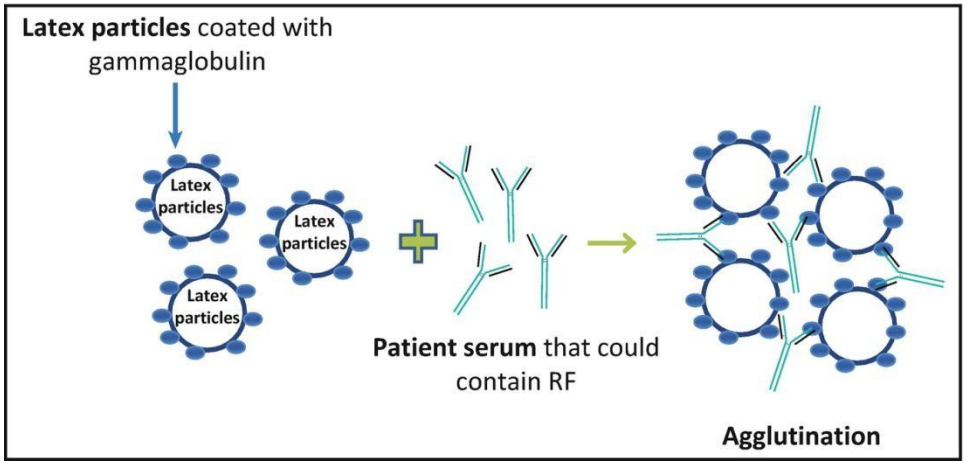
Msc. Alaa Khalaf Bediwi

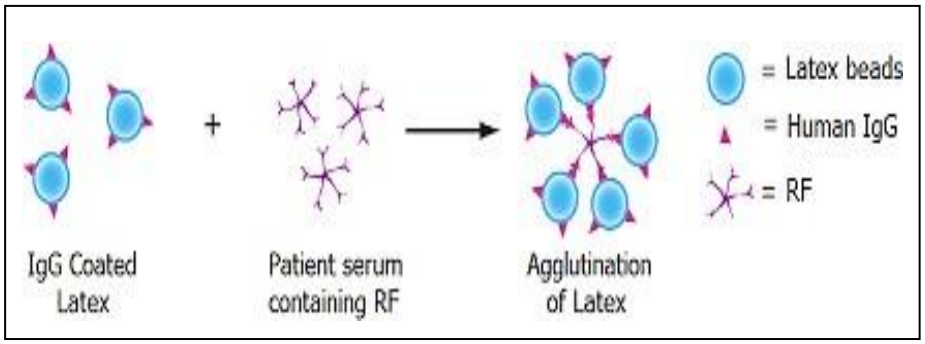
Rheumatoid Factor Test

- **Rheumatoid factors (RFs)** are **autoantibodies**, usually of the **IgM** class, directed against **human immunoglobulin-G (IgG)**.
- Rheumatoid factors are **elevated** in the blood and synovial fluid of 75% to 85% of people with rheumatoid arthritis (RA).
- It is unclear what triggers the body to produce Rheumatoid factors (RFs).

Principle:

- Testing **latex particles** are coated with **human gamma globulin-G (IgG)** against unknown serums. The presence of a visible agglutination indicates the presence of RF in the samples.





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➢ Reagents:

1- **RF-Latex Reagent:** latex particles coated with human gamma globulin (IgG) in a saline solution.

2- **Positive control:** Human serum with an activity about **25** IU/mL.

3- **Negative control:** Animal serum with an activity < **5** IU/mL.

Slide agglutination test (Qualitative test):

➢ Procedure

1- Bring the reagent and sample at room temperature and mix the reagent vial gently before use.

2- Put 1 drop (50µl) of the patient serum on the card.

3- Add 1 drop of RF-Latex Reagent to the serum and mix them.

4- Rotate the slide slowly.

5- Observe immediately under a light source for any agglutination.

6- Report the result.

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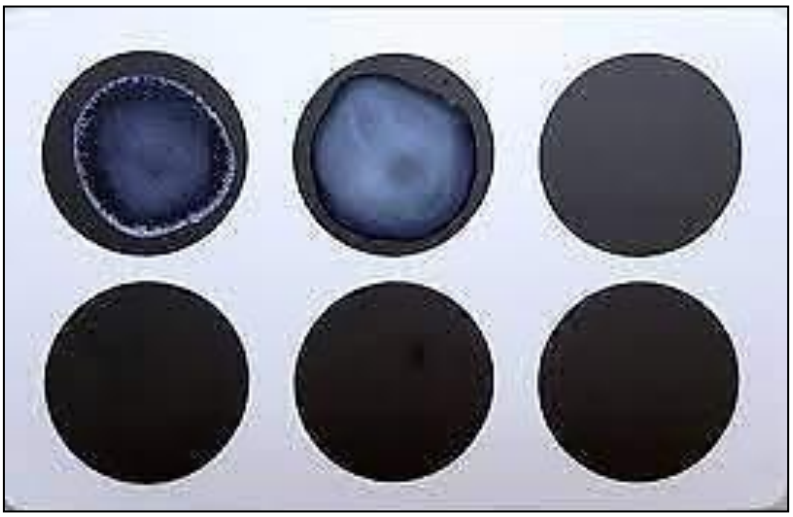
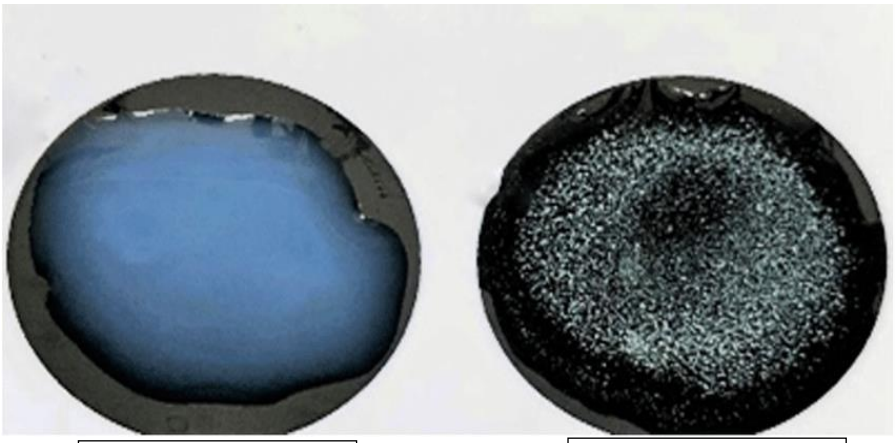
➢ Reading:

Nonreactive: No visible agglutination = **Negative**

Reactive: Any agglutination visible = **Positive**





Negative (-ve)

Positive (+ve)

- **Positive samples** are required to be **re-tested** in **semi-quantitative tests**, which use the same principle and steps as above with only one difference: that the patient serum should be **serially diluted**.

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Semi-quantitative Test

Dilute sample with saline as follow:

Tube	Dilution	Composition	RF titer IU/ml
1	1:2	**50** µl of **serum** + **50** µl of **saline**. Mix	1/16
2	1:4	**50** µl from **tube 1** + **50** µl of **saline**. Mix	1/32
3	1:8	**50** µl from **tube 2** + **50** µl of **saline**. Mix	1/64
4	1:16	**50** µl from **tube 3** + **50** µl of **saline**. Mix	1/128
5	1:32	**50** µl from **tube 4** + **50** µl of **saline**. Mix	1/256

Reading:

Titer: is the highest dilution giving agglutination

The result of **RF** (IU/ml) can be obtained by **multiplying** the titer of the dilution by the **minimum** detectable **unit** e.g. titer **(1/8)**.

For example: Dilution =1:16

RF concentration= 16 x 8 = 128 IU/mL