

Practical Immunology

Lab : 6



AL-Mustaqbal University

College of Medical Technology

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LAB 5

Stage 3rd

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C-reactive protein (CRP) test

C-reactive protein (CRP) is a serum protein which is synthesis and produced by the liver in response to inflammation

CRP test measures the amount of CRP in the blood to detect inflammation due to acute conditions or to monitor the severity of disease in chronic conditions.

it is non-specific indicator of inflammation, that means that it is released into the blood within a few hours after an injury, the start of an infection, or other cause of inflammation.

Uses of CRP Test

Healthcare providers typically order a C-reactive protein (CRP) test to help diagnose or rule out certain conditions, including:

Severe bacterial infections, such as sepsis.

- Fungal infections.
- Osteomyelitis (infection of your bone).
- Inflammatory bowel disease (IBD).
- Some forms of arthritis.
- Autoimmune diseases, such as rheumatoid arthritis or lupus (systemic lupus erythematosus).
- Pelvic inflammatory disease (PID).
- The determination of the CRP-level is useful to monitor the therapy.

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□ It is done to check for infection after surgery. CRP levels normally rise within 2 to 6 hours of surgery and then go down by the third day after surgery. If CRP levels stay elevated 3 days after surgery, an infection may be present.

Principle:

CRP Test is based on the latex agglutination. This is a slide agglutination test for the **qualitative and semiquantitative** detection of C- Reactive Protein (CRP) in human serum. Latex particles coated with goat anti-human CRP are agglutinated when mixed with samples containing CRP. When latex particles coated with human anti-CRP are mixed with a patient's serum containing C – reactive proteins, this results in visible agglutination within 2 minutes.

Materials Required:

- CRP Reagent: A stabilized buffered suspension of polystyrene latex particles coated with goat IgG anti-human CRP.
- Positive Control
- Negative Control
- Glass test slide.

Procedure of Qualitative Test

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- Bring all reagents and serum sample to Room Temperature and mix latex reagent gently prior to use. Do not dilute the controls and serum.
- Place 1 drop of Serum, Positive control and Negative control on separate reaction circle on glass slide.
- Then add 1 drop of CRP latex reagent to each of the circles.
- Mix with separate mixing sticks and spread the fluid over the entire area of the cell.
- Tilt the slide back and forth slowly for 2 minutes observing preferably under artificial light.
- Observe for visible agglutination.

Procedure of Semi-Quantitative Test

- Prepare dilution of the specimen with physiological saline 0.9% (N.S) as indicated in the following table

Dilution is:

- add 40 μ l of N.S on each separate reaction circle on glass slide
- add 40 μ l of serum in first reaction circle on glass slide and then mix it
- transport 40 μ l of mixed (N.S and serum) to next reaction circle on glass slide and also mixed with 40 μ l of N.S and continue with same way in remaining reaction circles on glass slide.

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- The last dilution of serum with visible agglutination is the CRP titre of the serum.

Dilution	CRP (ug/ml) in undiluted sample
1:2	14
1:4	28
1:8	56
1:16	112
1:32	224
1:64	448

Result Interpretation of CRP Test:

Agglutination of latex particles is considered a positive reaction, indicating the presence of C-reactive protein at a significant and detectable level. Specimens which do not contain human CRP will not cause agglutination

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