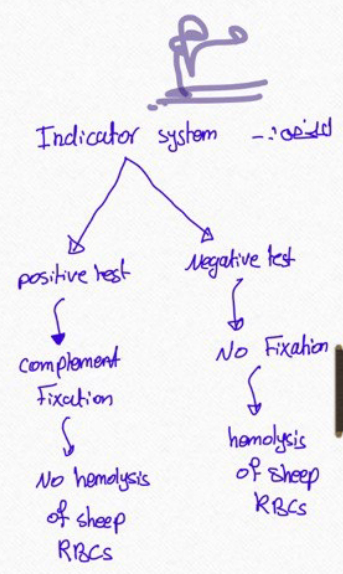


(a) Positive test. All available complement is fixed by the antigen-antibody reaction; no hemolysis occurs, so the test is positive for the presence of antibodies.

(b) Negative test. No antigen-antibody reaction occurs. The complement remains, and the red blood cells are lysed in the indicator stage, so the test is negative.



* سؤال امتحان: نوع الرابطة بين Ag و Ab ؟
non-covalent bond
"reversible Interaction"

Characteristics of this reaction

- Antibody molecules combine **reversibly** with antigens to form immune complexes.



- Specific
- Optimum temp. 37-56c.
- High affinity
- Non- covalent interactions

C. Complement fixation test

- The complement fixation test is an immunological medical test looking **for evidence of infection**. It tests for the presence of either specific antibody or specific antigen in a patient's serum.
- Complement is a group of proteins that are normally present in blood serum and play a role in immune defense.
- By used indicator system sheep red blood cells (sRBC) coated with antibodies that specifically bind to complement proteins (hemolysin), anti-sRBC antibody and complement, plus specific antigen (if looking for antibody in serum) or specific antibody (if looking for antigen in serum).
- If either the antibody or antigen is present in the patient's serum, then the complement is completely utilized, so the sRBCs are not lysed. But if the antibody (or antigen) is not present, then the complement is not used up, so it binds anti-sRBC antibody, and the sRBCs are lysed.

من للافتحان

Secondary serological tests:

Agglutination, precipitation
precipitation → 2 soluble Ag & Ab when they interact make insoluble compound
* Agglutination → one of Ag or Ab may be insoluble before clumps.

- In Ag-Ab binding; **Precipitation**, Precipitation reactions are based on the interaction of antibodies and antigens. They are based on **two soluble antigen and antibody** that come together to make one **insoluble** product, the **precipitate** which appear as line between 2 solutions.
- In Ag-Ab binding, **Agglutination**; Agglutination is the visible expression of the aggregation of antigens and antibodies. Agglutination reactions apply to cell bound antigens (on RBC or artificially fixed on particles-**particulate**) bind to antibody. The endpoint of the test is the observation of clumps resulting from that antigen-antibody complex formation.

مطلوب سؤال
للإختبار

Patient	1/2	1/4	1/8	1/16	1/32	1/64	1/128	1/256	1/512	1/1024	Pos.	Neg.	Titer
1	●	●	●	●	●	●	○	○	○	○	●	○	64
2	●	●	●	○	○	○	○	○	○	○	●	○	8
3	●	●	●	●	●	●	●	●	●	○	●	○	512
4	○	○	○	○	○	○	○	○	○	○	●	○	<2
5	●	●	●	●	●	○	○	○	○	○	●	○	32
6	○	○	●	●	●	●	●	○	○	○	●	○	128
7	●	●	●	●	●	○	○	○	○	○	●	○	32
8	●	●	○	○	○	○	○	○	○	○	●	○	4

لو مريض (1) ، المريفه (2)
عندهم brucella
مينا مقاومتة أفضل ؟
who have highest
titer :- patient (1)
المريض عنده
مؤنه agglutination صار
في نبع ترينز ل Ab .

A high titer (highest dilution) suggests a strong immune response, while a low titer may indicate a weaker response.

5. Coagglutination

*carrier of staph aureus is
[protein A] *p.a.*

- Coagglutination (CoA) is similar to the Latex Agglutination technique for detecting antigen.
- Protein A, a uniformly distributed cell wall component of *Staphylococcus aureus*, is able to bind to the Fc region of most IgG isotype antibodies leaving the Fab region free to interact with antigens present in the applied specimens.
- The visible agglutination of the *S. aureus* particles indicates the antigen-antibody reaction.