Baghdad University **Practical Immunology**
College of Sciences for Women **Lab-5 / 4 th stage**
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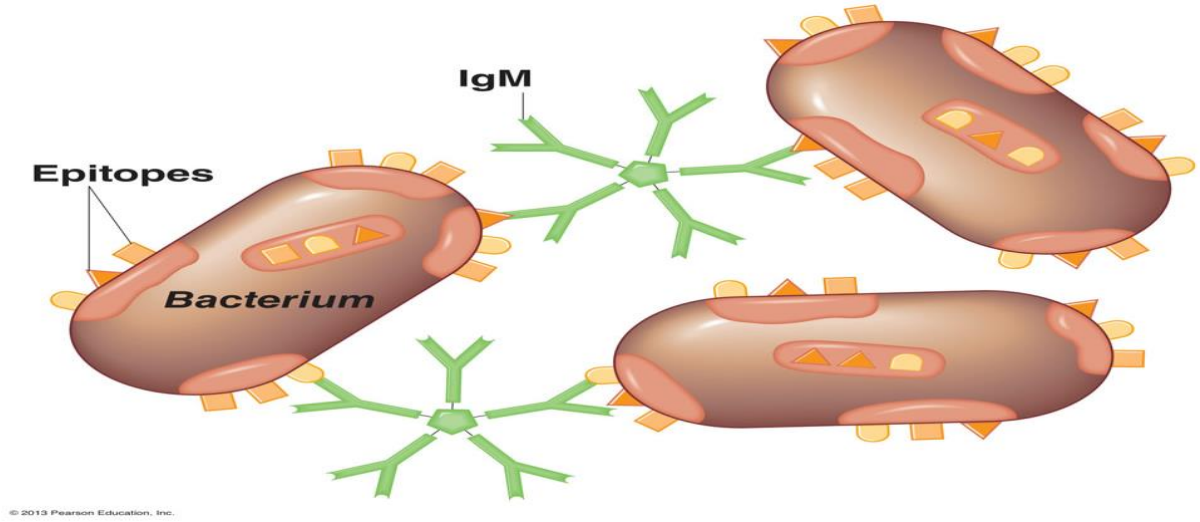
Immunological Reactions:

1. **Agglutination Reactions.**
2. **Precipitation Reactions.**
3. **ELISA Reactions.**
4. **Radio-Immuno Assay (RIA)**
5. **Fluourescent Immune Reactions.**
6. **Complement Fixation Tests.**
7. **Flowcytometry.**
8. **Immune Fixation Tests.**
9. **Microarray Reactions.**
10. **Bence-Jones Reaction (in Blood and Urine).**
11. **HLA Typing.**
12. **Immunoblotting Tests.**
13. **Molecular Tests (PCR).**

Agglutination Reactions

Definition

The interaction of particulate antigens (cells that carry antigens) with antibodies leads to agglutination reactions (MEANS CLUMPING of the particles). **Figure** (1)



Agglutination Reactions Figure(1)

Principles of Agglutination Test

Agglutination occurs in two stages:

1- **First stage** (Primary Immunological reaction is the union between Antigen and Antibody).

2- **Second stage** (Secondary reaction is the formation of visible clumps).

Types of Agglutination:

1- Direct Agglutination

Direct agglutination reactions test patient serum for the presence of antibodies against large, cellular antigens.

2- Indirect Agglutination

Indirect Agglutination Include:

A - To test patient serum for the presence of **antibodies against soluble antigens** serum is mixed with latex spheres with the soluble antigens attached, Antibodies will then cause visible agglutination of the latex spheres with the soluble antigens attached. **Figure** (2A)

Alternatively, antibodies may be attached to the latex spheres to test for the presence of soluble antigens in patient serum. **Figure** (2B)

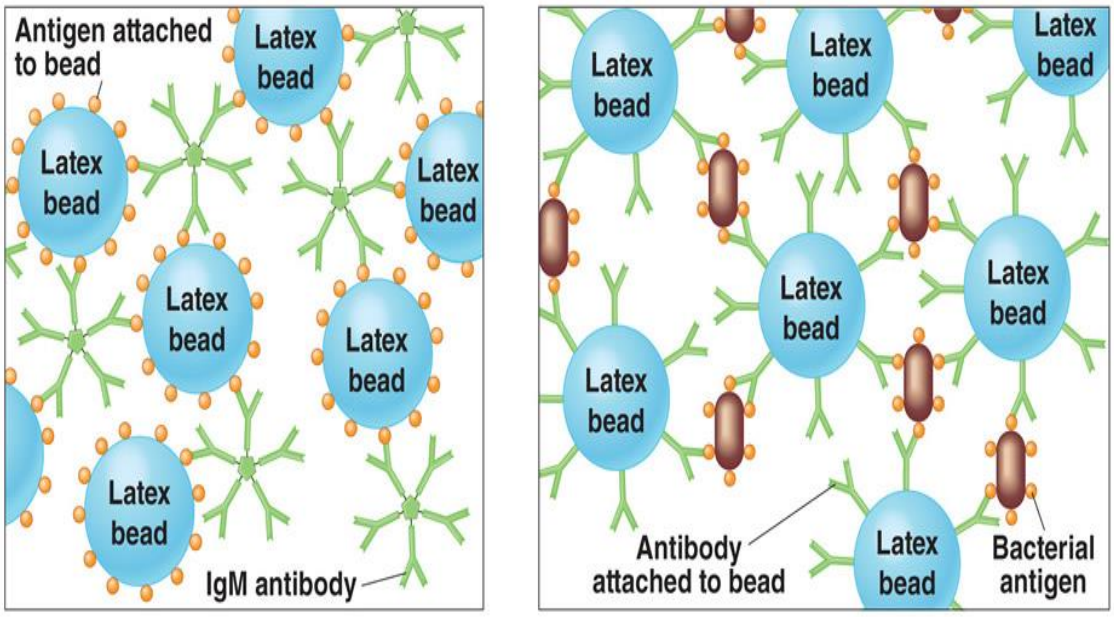
B - Hemagglutination reactions:

involve agglutination reactions using red blood cells.

C - Viral hemagglutination:

Occurs when the virus cause agglutination of red blood cells - there is no antigen-antibody interaction. **Figure** (3)

3- Agglutination Inhibition Test



(a) Reaction in a positive indirect test for antibodies. When particles (latex beads here) are coated with antigens, agglutination indicates the presence of antibodies, such as the IgM shown here.

(b) Reaction in a positive indirect test for antigens. When particles are coated with monoclonal antibodies, agglutination indicates the presence of antigens.

Figure (2)

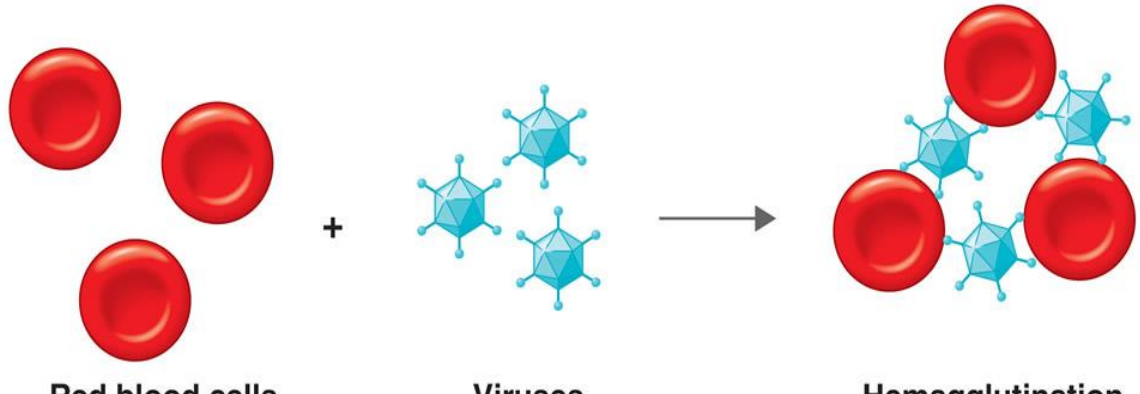


Figure (3)

Application Type of Agglutination Reactions:

1- Rose Bengal Test.
2- widal Test.
3- Blood Groop Test.
4- Pregnancy Test.
5- C- Reactive protien Test. (Acute phase protien)
6- Rheumatoid Facter Test. (RF)
7- Coomb,s Test.
8- Anti-Streptolysin-Otiler. (ASO)