# IMMUNOLOGY
# FIRST COURSE

## Effect of complement against bacteria.


Sawa University — جامعـــــة ســـــــاوة الاهلية

College of health and medical techniques — كليـــــة التقنيـــات الصحيـة والطبيـة

Department of Medical Laboratories — قسم تقنيات المختبرات الطبية

Third Stage — المرحلـــــــــــة : الثالثة


الجانب العملي — محاضرة رقم 4

Practical — Lecture No. 4

تدريسي المادة : م.د عبد الرحمن سالم

# Complement fixation

**Items:-**

1. **Complement fixation**
2. **Type of complement fixation**
3. **Procedures**

## Complement fixation :-

Complement fixation tests detect the presence of antigen-antibody complexes on cells or intracellular matrix or as "soluble" complexes in the serum.

There are two parts to this test :-

1. **The indicator system**:-
2. **To assay for the presence of antigen-antibody complexes :-**

## Principle :-

**Antigen-antibody complexes in the serum or tissue-bound antibody requires that the serum or tissue is incubated with complement. The presence of complement-fixing antigen-antibody complexes depletes the limited amount of complement so that antibody-coated erythrocytes, when added to the reaction mixture, are not lysed and hemoglobin is not released and determined spectrophotometrically.**

**Procedure :-**

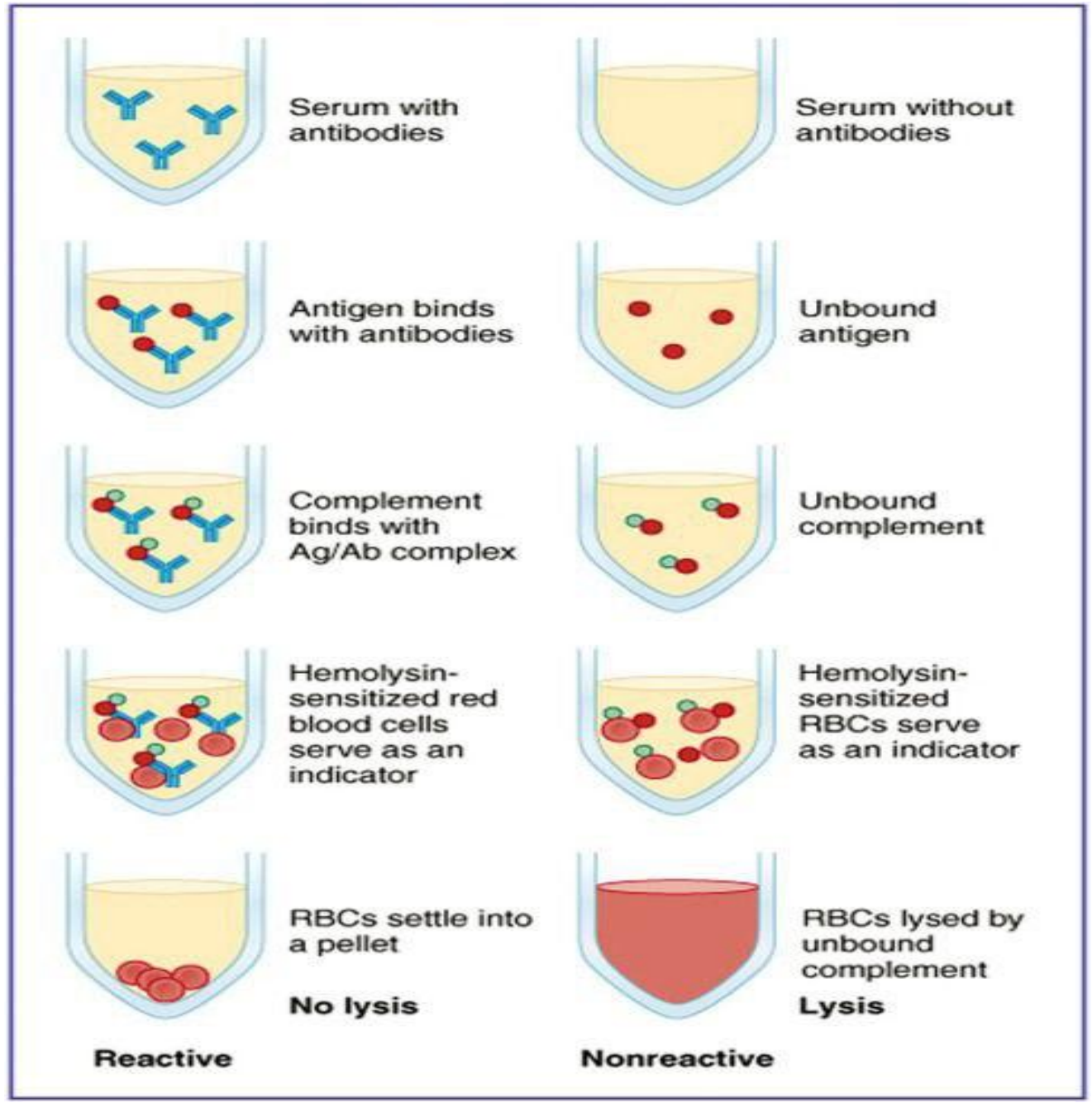
In the assay, serum is collected from an individual and heated to 56°C for 30 minutes to inactivate endogenous complement, and a predetermined amount of complement is added.

**(1)-**The mixture is incubated to allow complement to bind to antigen-antibody complexes (if present)**.**

**(2)-**Sheep RBC and anti-Sheep RBC antibodies are added and allowed to incubate.

**(3)-**The presence of antigen-antibody complexes in the test serum will have depleted the added complement, and the SRBC will not be lysed**.**

**(4)-**Absence of antigen-antibody complexes in the test serum will result in a failure to deplete complement, and the indicator cells (SRBC) will be lysed, releasing hemoglobin into the supernatant that can be measured in a spectrophotometer**.**


Serum with antibodies
Serum without antibodies
Antigen binds with antibodies
Unbound antigen
Complement binds with Ag/Ab complex
Unbound complement
Hemolysin-sensitized red blood cells serve as an indicator
Hemolysin-sensitized RBCs serve as an indicator
RBCs settle into a pellet
No lysis
RBCs lysed by unbound complement
Lysis
Reactive
Nonreactive

# Any questions?