

ANTIBIOTICS

DONE BY:

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- ⦿ **Antibiotic:** it is a compound produced by living organism which inhibit or kills other organism.
- ⦿ It can be:
 1. **Bactericidal:** Antibiotic that kills the bacteria.
 2. **Bacteriostatic:** Antibiotic that inhibit the growth of bacteria.

TYPES OF ANTIBIOTIC:

1. **Broad-spectrum:** if the antibiotic is effective against both gram +ve and gram -ve bacteria.
2. **Narrow-spectrum:** if the antibiotic is effective against gram +ve bacteria only or gram -ve bacteria only.

MECHANISMS OF ACTION OF ANTIBIOTIC AGAINST THE BACTERIA:

1. Inhibition of DNA synthesis.
2. Inhibition of protein synthesis.
3. Inhibition of cell wall synthesis.
4. Inhibition of cell membrane function.

ANTIBIOTIC SENSITIVITY TEST:

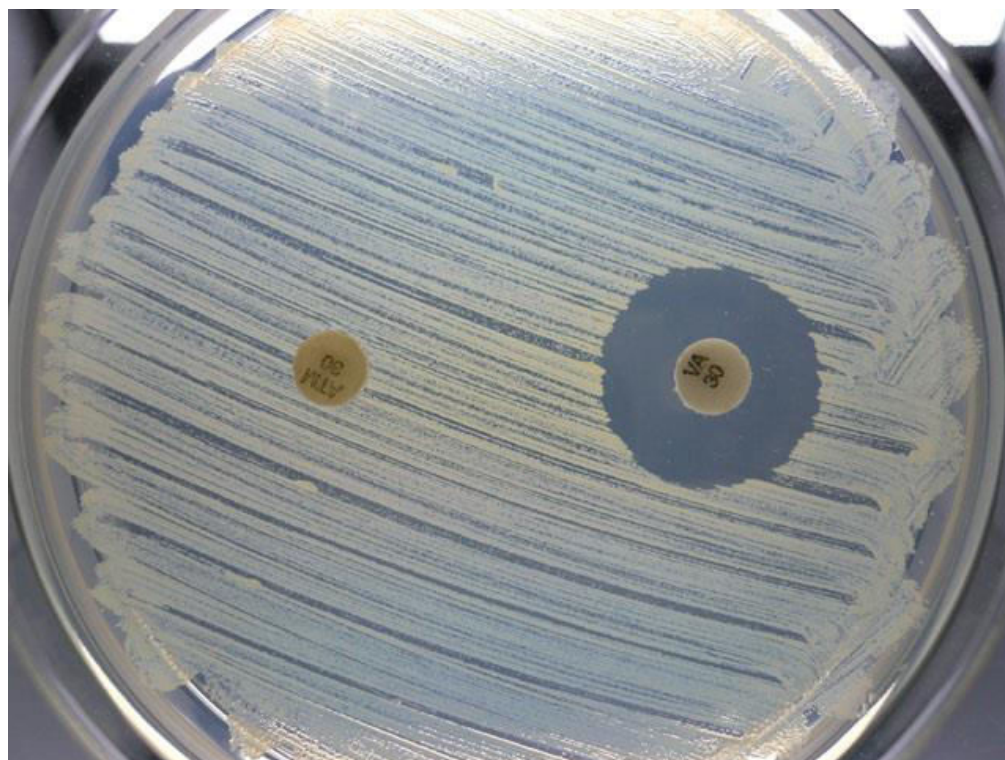
1) Kirby-bauer method:

We use:

- ❖ Muller Hinton agar (MH)
- ❖ Test bacteria (from the patient)
- ❖ Antibiotics discs

Result:

- If the bacteria is sensitive to the antibiotic we will see **inhibition zone** (clear area around the disc).
- If the bacteria is resistance to the antibiotic we will **NOT** see the inhibition zone.
- Measure diameter of the inhibition zone & see the table.



2) Stoke's method:

We use:

- ❖ Muller Hinton agar (MH)
- ❖ Test bacteria (from the patient) and Control bacteria (from the reference lab)
- ❖ Antibiotics discs

Result:

- If the inhibition zone of the test bacteria is **bigger** or equal to the inhibition zone of the control bacteria that means that the bacteria is **sensitive** to the antibiotic.
- If the inhibition zone of the test bacteria is **smaller** to the inhibition zone of the control bacteria that means that the bacteria is **resistance** to the antibiotic.



MIC (MINIMUM INHIBITORY CONCENTRATION):

- ⦿ This test to know the minimum concentration of antibiotic that can inhibit or kill the bacteria growth.
- ⦿ That last tube that show no growth is the MIC of the test.
- ⦿ See the previous lab for details.