**Course Title: General pharmacology I (LAB)**

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**Discuss mechanism of antibiotics according to different targets and classify them one by one**

**Ans: antibiotics:**

 **Antibiotics are substances that kill orinhibits the growth of microorg**anism .

Bacteriostatic ( tetracycline, chloramphenicol)

Bacteriocidal (beta lactams Amino glycosidic.

**Antibiotics classification:**

There are all components or function necessary for beactrial growth

Targets for antibiotics :

* Inhibitors of cell wall synthesis
* Inhibitors of protein synthesis
* inhibitors of membrane synthesis
* Anti metabiotics
* Ihhibitors of nuclieic acid synthesis.

**Inhibitors of cell wll synthesisand function:**

**Beta-lactams**

* Penicillins
* cephalospporin
* Monobactams
* carbapenems

 • vancomycin

 • Daptomycin

**Bacteria cell wall synthesis:**

* The peptidogiycan (which provide rigid mechanical stability)is composed of glycan chain which are liner strands of two alternating amino sugar tht are cross link by peotide chain.
* In gram - piostive microoganism the cell is 50 to 100 molecule thick but it is only 1 to 2 molecules thicks in gram - negative

 • the cell wall bacteria are essentially for their normal growth and development..

**Penicillins:**

 **Mechanism of action of beta lactams:**

 **•.** The first most diverse , and most commonly used class of antibiotic.

* All penicillin derivativesw produce thier bacteriocidal effects by inhibition of bacterial cell wall synthesis.
* Beta lactams antibiotic are generally bacteriocidal.

**inhibitors of protein synthesis:**

Aminoglycoside: Gentamicin, Tobramycin,Amikacin

 MLSK(Macrolides ,Lincosamide, Streptomycin)

Tetracyclines-**(**bactericiddal) tetracycline , Doxyccline

**Chloramphenical:**

* **c**horaphenical bind reversible
* y to the 50s subunite of the bacteria ribosome and inhibit pepptid bond formation
* Bacteriostatic broad spectrum antibiotics that is active against both areobic and anareobic gram-negative gram- postive orga**nism**
* It is active also aganist rickettsiae but no Chlamydiae.

3: **Inhibitors of Membrane**

 **Function;**

* Lipospeptides
* Polymyxins
* Colistime
* ethate sodium
* Cyclic lipopeptides

**Polymyxin of action:**

* Target: Membrane phospholipids saccharides (lps) and Lipopot.
* Outer and cytoplasmic membrane effect
* Gram positive are naturally resistance.
* cattionic detergent and effect all membranes similarly toxic side effect are common

**Inhibitors of Nucleic acids synthesisan and function:**

**quinolones:**

 Humans do synthesize DNA- shared process with bacteria

Do tend to see some side effect with Quinnolones some drugs withdrawn from market quikly quinoline.

**Mode of action:**

 • Rapid bacterial activities.

* Small and hydrophilic quinolones have no prpblem crossing the outer membrane.
* They easily diffuse through the peptidoglycan and the cytoplasmic membrane and rapidly their target.
* Target +Topoisomerrases(DNA-gyrase)