





# *AMINOGLYCOSIDE ANTIBIOTICS*

# AMINOGLYCOSIDE

- **Group of natural and semi synthetic antibiotics.**
- **Streptomycin - 1944.by Waksman**
- **Active - Tubercle bacilli**
- **Neomycin - 1949.**

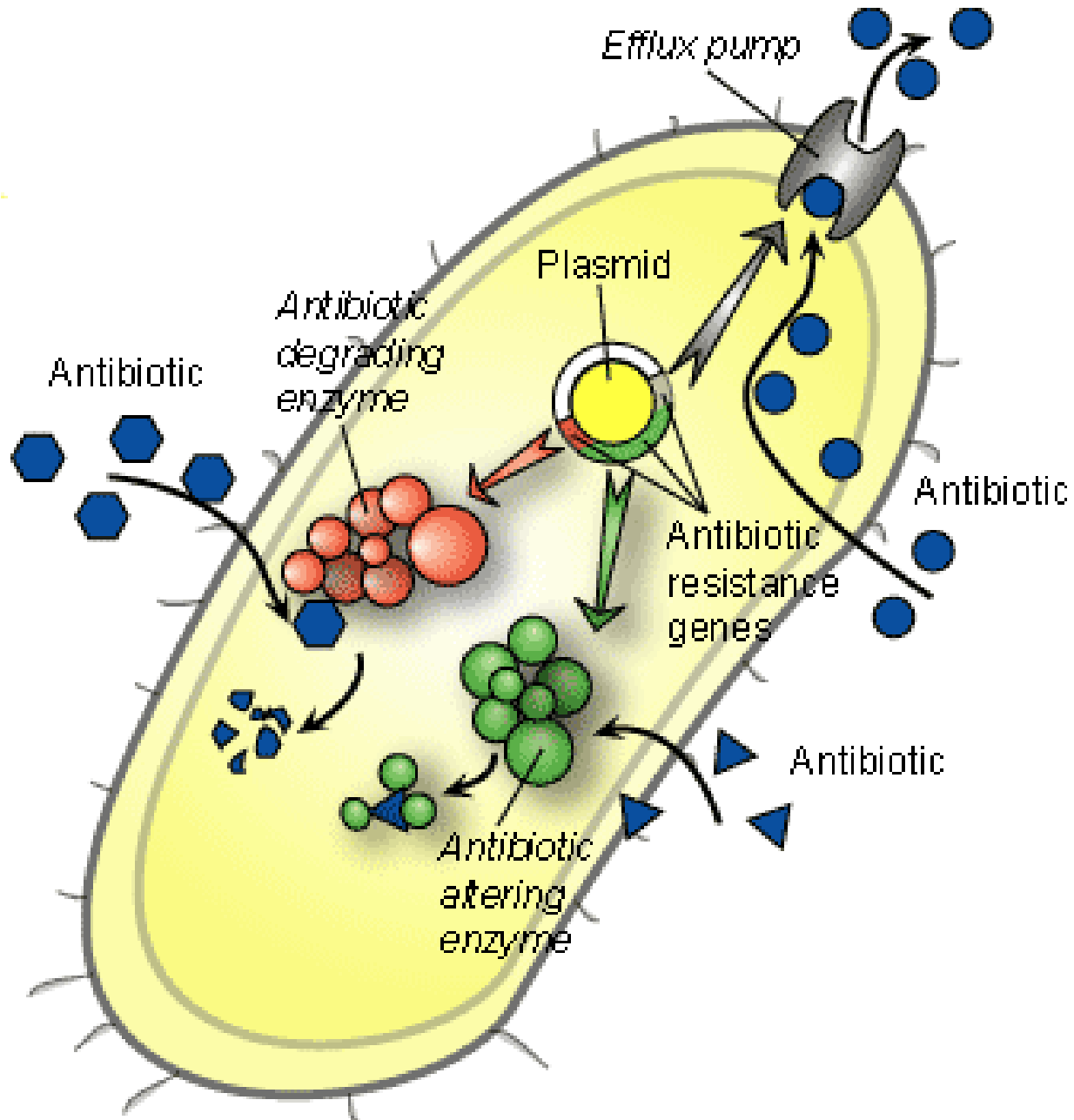
# COMMON PROPERTIES

- **Sulphate Salts**
- **Highly water soluble**
- **Stable**
- **Ionize in solution**
- **Excreted unchanged in urine by glomerular filtration**
- **Bactericidal > active at alkaline pH**
- **By interfering with bacterial protein synthesis**
- **Active against aerobic gram negative bacilli**
- **Partial cross resistance**
- **Narrow margin of safety**
- **Ototoxicity & nephrotoxicity**
- **Neomycin & Framycetin – aminoglycosides, systemic toxicity.**

# MECHANISM OF ACTION

- **Transport of the aminoglycoside through the bacterial cell wall and cytoplasmic membrane.**
- **Binding to ribosome resulting in inhibition of protein synthesis.**
- **SM binds to 30s ribosome**
- **Aminoglycosides- binds to 50s subunit**
  - 30s - 50s interface
  - Distortion of mRNA

# MECHANISM OF RESISTANCE



# SHARED TOXICITIES

**Ototoxicity**                    --    **Cochlear damage**  
   --    **Vestibular  
   damage**

**Nephrotoxicity**

**Neuromuscular blockade** -- **Neomycin &  
Streptomycin > Kanamycin, Gentamicin,  
Amikacin.**