

* **Glycopeptide ABs** :

- **Vancomycin**
- Teicoplanin
- Telavancin
- Dalbavancin

* **vancomycin** :

- inhibition Bacterial cell wall synthesis by binding to the D-ala-D-ala terminus
- Bactericidal
- active against :
 - (G+ve)
 - producing β -Lactamase
 - resistant to nafcillin
 - resistant to Methicillin
 - MRSA
 - enterococcal infections
- Used for treatment serious infections
- Resistance in two MoA :-
 - ① change in permeability to the drug
 - ② ↓ binding of vancomycin to receptor
{ replacing terminal D-ala by D-lactate }
- IV for systemic infection.
- oral only for C. difficile ~~colitis~~ colitis.
- Vancomycin + ceftriaxone = treat meningitis
- S/E :
 - irritating
 - red man or red neck syndrome :
 - cause by release histamine
- Pretreatment by antihistaminic as :
(diphenhydramine)

* Daptomycin %
→ work on cell membrane.
→ not work on cell wall.

* Daptomycin
(cyclic lipopeptide) + Ca^{2+} = depolarization = $\downarrow K^+$ = cell death

* Daptomycin active
→ similar to the vancomycin
→ enterococci
→ S. aureus

* Daptomycin alternative
→ linezolid
→ quinupristin = ① MRSA
→ dalbapristin ② VRE
For treat :-

* Daptomycin + Surfactants = inactivation = so, not use for pneumonia

* Fosfomycin :
→ work on cell wall
→ Analog of phosphoenolpyruvate (PEP)
→ $\downarrow$ enzyme enolpyruvate $\downarrow$ Formation N-acetylmuramic acid
→ active against → (G-ve)
→ (G+ve)
→ Excreted by → Kidney
→ used as single dose
→ for treat uncomplicated Lower urinary tract infections in women.

* Bacitracin:

- work on cell wall
- is mixture of cyclic polypeptides
- active → (G+ve)
- inhibit cell wall: by interfering with dephosphorylation of the lipid.
- **topically**:
 - eye infection
 - skin infection
- use to infants with:
 - staphylococcal pneumonia
 - empyema
- **[US Boxed warning]**: IM use may cause renal failure.

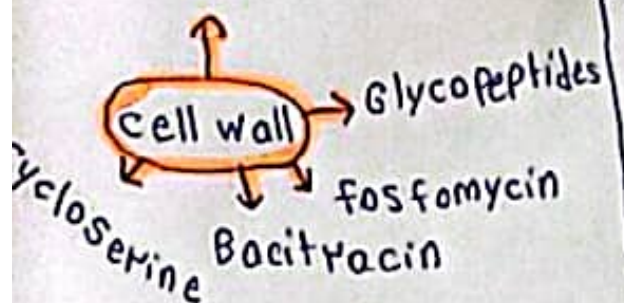
* cycloserine:

- (G-ve) + (G+ve)
- L-alanine $\xrightarrow{\text{alanine racemase}}$ D-alanine
- inhibition to alanine racemase by cycloserine $\times$
بمادة cycloserine يمنع تكون الـ (D-alanine) $\leftarrow$
- for treat → tuberculosis.
- **S/E at high dose**:
 - CNS toxicity
 - headaches
 - tremors
 - acute psychosis
 - convulsions
- orally

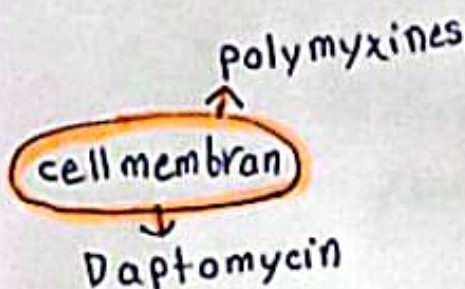
* Polymyxines : (G-ve)

- work on cell membran
- have a detergent-like effect
- bactericidal
- two type :
 - polymyxin B
 - Polymyxin E (colistin)

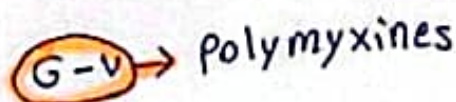
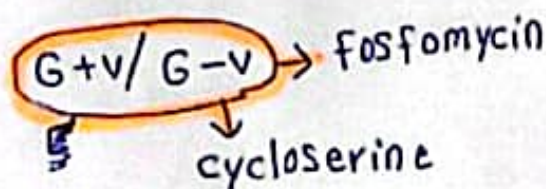
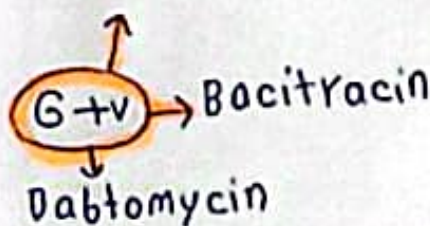
B-lactam



cycloserine



Vancomycin



- polymyxin B:
 - parenteral
 - otic
 - ophthalmic
 - topical

- colistin: prodrug
 - colistimethate sodium

- colistimethate :
 - IV
 - inhaled

- S/E:
 - nephrotoxicity
 - neurotoxicity:
 - slurred speech
 - muscle weakness

when used systemically

Used as salvage therapy

for patients with multidrug-resistant infection: