

1. Aminoglycosides

MOA: Inhibit the 30s subunit of the Ribosomal → Inhibit initiation and elongation (Bactericidal)

Tobramycin – cross resistance with gentamycin – NO enterococcus

Amikacin – NO enterococcus

Neomycin – Topical only

Gentamycin – cross resistance with tobramycin

Streptomycin - F. Tulerensis, Yersinia pestis, Brucella (Biowarfare) – NO pseudomonas, MRSA

PK: Does not cross the BBB

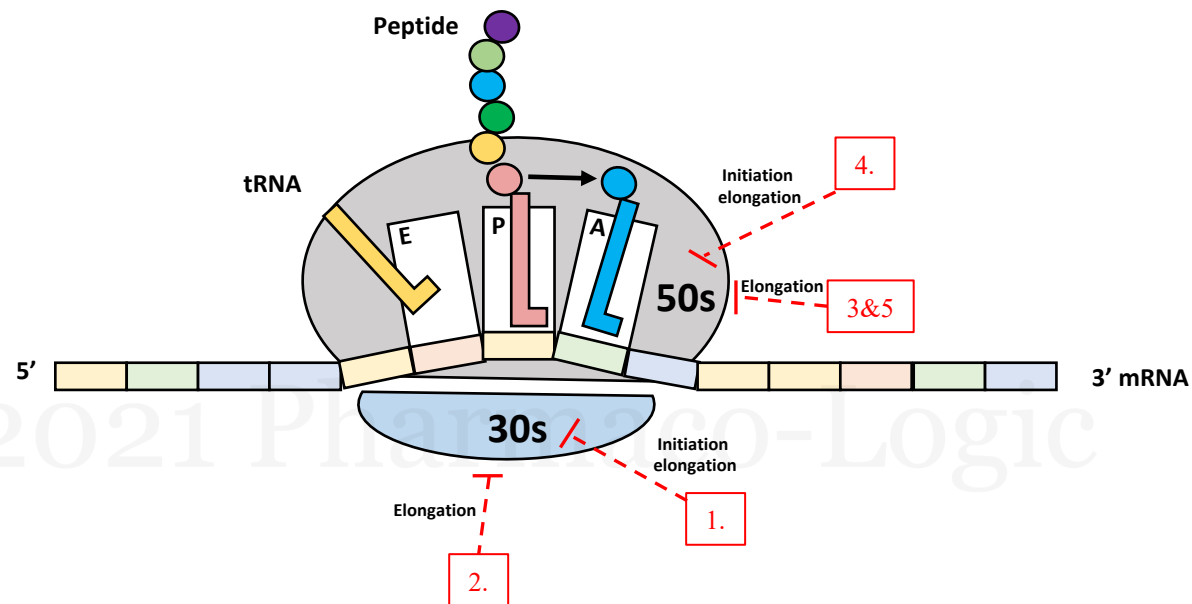
Spectrum: Synergistic effect with CWSI

- **G(+)** (w/ CWSI) – Listeria, MRSA (w/ vanc), Enterococcus-(Gent, Strep)
- **G(-)** – Pseudomonas, H. Infl., Enterobacteriaceae
- **Mycobacteria**

Resistance – Anaerobes: Oxygen required for entry

- Enzymatic drug inactivation – Phosphorylation, Acetylases, Adenylases
- Altered target site
- Porin mutations

SE: Ototoxicity, Nephrotoxic (ATN), Preg Cat D.



2. Tetracyclines

MOA: Inhibit the 30s subunit of the Ribosomal → Inhibit elongation (Bacteriostatic)

Tetracycline

Doxycycline – Biliary excretion, Phototoxicity

Minocycline – Crosses the BBB

Tigecycline – Strong(5x)-Parenteral, Biliary excretion
Extended - MRSA, VRSA, VRE, PRSP

PK: Decreased absorp. with Divalent cations, does not cross BBB

Spectrum: 7/7 – Broad – Tickbites

- **G(+)** – Strep, Staph, Listeria, Enterococcus
- **G(-)** – H. Infl., N. Meningitis, Enterobacteriaceae
- **Anaerobes** – Propionibacterium, Except C. Diff
- **Spirochetes** – Treponema, Borrelia
- **Atypicals** – Mycoplasma
- **Rickettsiae** – Rocky mountain spotted fever
- **Mycobacteria** – Leprosy

Resistance – Pseudomonas

- Enzymatic drug inactivation
- Altered target site
- Porin mediated drug efflux

SE: Concentrates in teeth/bones, photosensitivity,

Ototoxicity (mino), Hepatotoxicity, esophagitis

CI: Preg Cat D, Oral contraceptives, Dairy, antacids

3. Macrolides

MOA: Inhibit the 50s subunit of the Ribosomal → Inhibit elongation

Erythromycin – strong CYP3A4 enzymes

Azithromycin – decreased absorp. with food,

Extended: Moraxella, H. Pylori, MAC

Clarithromycin – Preg cat C

Extended: Moraxella, H. Pylori, MAC

PK: NO BBB, decreased by food (except – Clarith), Biliary

Spectrum: 6/7 – Broad – non-immunized pts

- **G(+)** – Strep, Staph, C. Diphtheria
- **G(-)** – N. Meningitis, B. pertussis, Campylobacter, H. Infl
- **Anaerobes** – Propionibacterium, Except C. Diff
- **Spirochetes** – Treponema, Borrelia
- **Atypicals** – Mycoplasma, Chlamydia
- **Rickettsiae** – Rocky mountain spotted fever
- **Mycobacteria** – MAC(azith)

Resistance – Methylation of the ribosome, increased efflux

SE: Stimulate motilin receptors, Prolong of QT, Hepatitis, Associate with pyloric stenosis

4. Clindamycin

MOA: Inhibit the 50s subunit of the Ribosomal → Inhibit initiation and elongation

PK: Absorption delayed with food

Spectrum:

- **G(+)** – Streptococcus (PRSP), Staph (CA-MRSA)
- Anaerobes – except C. Diff

Resistance Cross resistance with macrolides

SE: Superinfection, Upset GI

5. Chloramphenicol

MOA: Inhibit the 50s subunit of the Ribosomal → Inhibit elongation

Spectrum: RAMPHEN (4/7) +,-,A,a

- **G(+)** – Streptococcus,
- **G(-)** – N. Meningitis, H. influ, Enterobacteriaceae
- Anaerobes
- Atypicals

Resistance Enzymatic drug degradation

• Chloramphenicol acetyltransferase (CAT)

SE: Aplastic anemia, Myelosuppression, Grey baby syndrome, CYP inhibitor