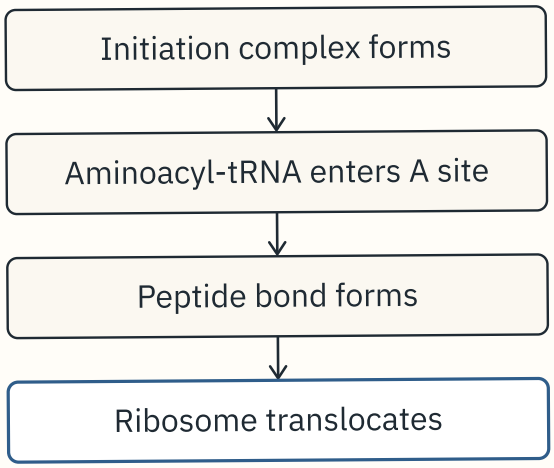
Protein synthesis inhibitors

30S vs 50S: step blocked and signature adverse effect



Step by step

1. Bacteria 70S (30S + 50S); human 80S
2. Name the subunit: A T at thirty, C C E L at fifty
3. Name the step blocked
4. Link the drug to its signature adverse effect

Class	Subunit, step	Signature adverse effect
Aminoglycosides	30S, misreading	Nephro- and ototoxicity
Tetracyclines	30S, A site block	Teeth staining; calcium cuts absorption
Macrolides	50S, translocation	QT prolongation, CYP3A4
Chloramphenicol	50S, peptidyl transferase	Marrow suppression, gray baby
Linezolid	50S, initiation	Marrow suppression

Class, subunit and signature adverse effect

Memory aid

A T at thirty: aminoglycosides, tetracyclines

C C E L at fifty: chloramphenicol, clindamycin, erythromycin (macrolides), linezolid

Aminoglycosides need oxygen to enter: no anaerobes

Exam traps

- Adverse effects follow the drug and where it goes, not the bacterial step blocked.
- Tetracyclines chelate calcium and stain developing teeth: avoid in pregnancy and young children.
- Macrolide step (translocation) is the Step 1 convention; sources vary.

Protein synthesis inhibitors: 30S vs 50S antibiotics

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/pharmacology-principles-autonomic/protein-synthesis-inhibitors-30s-vs-50s

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