



## Inhibitors of translation

- Translation can be inhibited by a number of compounds
- Inhibitors may act only on prokaryotes or eukaryotes or on both
- Inhibitors acting only on prokaryotes can be used as antibiotics

Inhibitors of prokaryotic translation used as antibiotics are:

Streptomycin

Tetracyclines

Chloramphenicol

Erythromycin

# Streptomycin

Prokaryotic translation begins with the binding of formylmethionyl tRNA to 30S ribosomal subunit

Streptomycin inhibits this binding and prevents initiation

It also causes misreading of codons on mRNA

## Some other antibiotics acting like streptomycin are:

- Neomycin
- Kanamycin
- Gentamycin

# Tetracyclines

Tetracyclines bind to 50S ribosomal subunit of prokaryotes

They prevent binding of amino acyl tRNA to the A site

# Chloramphenicol

Chloramphenicol is an inhibitor of peptidyl transferase activity of 23S rRNA

This rRNA is present in 50S ribosomal subunit in prokaryotes

Inhibition of peptidyl transferase prevents the formation of peptide bonds

# Erythromycin

Erythromycin is an inhibitor of EF-G, the analogue of eukaryotic eEF-2

Inhibition of EF-G prevents translocation of mRNA along the ribosome

This blocks elongation

Thank you

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