



# PurMa™ Prokaryotic Cell Culture

## Suited Antibiotics Booklet

Name of Antibiotic	Function
Ampicillin	Ampicillin is a $\beta$ -lactam antibiotic that inhibits bacterial cell-wall synthesis by inactivating transpeptidases on the inner surface of the bacterial cell membrane. (1).
Kanamycin	This antibiotic acts by binding to the 70S ribosomal subunit, inhibiting translocation and eliciting miscoding (2).
Cefotaxime sodium salt	Cefotaxime binds to penicillin-binding proteins (PBPs) and so inhibits the synthesis of bacterial cell wall, and consequently, autolytic enzymes degrade the cell wall (3).
Cephalothin Sodium Salt	Directly affects bacterial cell wall by Disrupting the synthesis of the peptidoglycan layer (4).
Chloramphenicol	Chloramphenicol blocks the peptidyl transferase step by binding to the 50S ribosomal subunit and preventing attachment of aminoacyl tRNA to the ribosome, as a result, bacterial protein synthesis is impaired.
	Chloramphenicol also inhibits the ribosomal formation and the synthesis of mitochondrial and chloroplast protein (5).

Name of Antibiotic	Function
Erythromycin	Impairs the transpeptidation step, specifically the process of translocation of aminoacyl from the A-site to P-site by binding to the 50s subunit of the bacterial 70s rRNA complex (6).
G-418	It is used as a selection agent (marker) for prokaryotic and eukaryotic cells transfected with an iNOS promoter construct with neomycin resistance gene (7).
Gentamicin Sulfate	It is an aminoglycoside and prevents protein synthesis (8).
Neomycin Sulfate	Causes miscoding and inhibiting the initiation and elongation of protein synthesis by binding to 30S and 50S subunits. This antibiotic also blocks voltage sensitive Ca <sup>2+</sup> channels (9).
Paromomycin Sulfate	Inhibits the initiation and elongation of protein synthesis by binding to 16S ribosomal RNA. Paramomycin causes producing defective polypeptide chains and cell death by binding to the A site (10)
Phenoxymethylpenicillinic Acid (potassium salt) (Penicillin V)	Penicillin G inhibits cell wall synthesis through binding to penicillin- binding proteins (PBPs), inhibiting peptidoglycan chain cross-linking (11).
Polymyxin B Sulfate	Polymyxin B Sulfate disrupts the permeability of the cytoplasmic membrane by binding to the lipid A portion of bacterial lipopolysaccharide. This results in disrupting the cytoplasmic membrane by inducing large pores in bacterial walls (12).
Spectinomycin dihydrochloride pentahydrate	Dysfunctioning the protein synthesis affecting the 30S ribosomal subunit and the 16s rRNA (13).

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