

**List of antibiotics together with their antimicrobial spectrum and their mode of action.**

Antibiotic	Antimicrobial spectrum	Mode of action
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Inhibitor of cell wall synthesis ( $\beta$ -lactams)		
Ampicillin trihydrate	G+, G-	Inhibitors of the last step in cell wall synthesis, the cross-linking of different peptidoglycan strands.
Carbenicillin, Na <sub>2</sub> -salt	G+, G-	
Penicillin sodium	G+	
Ampicillin sodium	G+, G-	

Inhibitor of cell membrane function:		
<b>a) Polyene Macrolides</b>		
Amphotericin B	F, Y, M	Form complex with cholesterol. Cause leakage of glucose. Only act on membranes containing cholesterol, hence having no effect on bacteria.
Nystatin	F, Y	
<b>b) Peptides</b>		
Polymyxin B sulphate	G-	Causes changes in membrane structure resulting in leakage of small molecules

Inhibitors of protein synthesis		
<b>a) Aminoglycosides</b>		
Gentamycin sulphate	G+, G-, My	
Kanamycin sulphate	G+, G-, My	
Neomycin sulphate	G+, G-	
Streptomycin sulphate	G+, G-	
<b>b) Tetracyclines</b>		
7-Chlortetracycline x HCl	G+, G-	Inhibitors of bacterial protein synthesis by preventing aminoacyl-RNA binding to the A-side of the 30S ribosomal subunit.
Oxytetracycline x HCl (7-Hydroxy-Tetracycline)	G+, G-	
Tetracycline x HCl Tetracycline base	G+, G-, My G+, G-, My	
<b>c) Macrolides</b>		
Erythromycin base	G+, My	Binds to ribosomal 50S subunit and interferes with the peptidyl transferase activity.
Tylosin Tartrate	G+, My	
<b>d) Other</b>		
Licomycin x HCl	G+	Inhibits protein synthesis by complexing with the ribosomal 50S subunit
Tiamutin (Tiamulin Fumarate)	G+, My	
Chloramphenicol	G+, G-	Inhibits prokaryote but not eukaryote protein synthesis by preventing the peptidyl transferase reaction.

G+ = active against Gram-positive bacteria

G- = active against Gram-negative bacteria

F = active against fungi

My = active against Mycoplasma

Y = active against yeast

**List of antibiotics together with their solubility in water and different solvents**

Antibiotic	solubility
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**Inhibitor of cell wall synthesis ( $\beta$ -lactams)**

Ampicillin trihydrate	1:150 in H <sub>2</sub> O, soluble in diluted acids and bases; insoluble in alcohols
Carbenicillin, Na <sub>2</sub> -salt	1:1.2 in H <sub>2</sub> O, 1:25 in Ethanol
Penicillin sodium	> 20 mg/ml in H <sub>2</sub> O; > 20 mg/ml Methanol; 10 mg/ml Ethanol
Ampicillin sodium	1:2 in H <sub>2</sub> O

**Inhibitor of cell membrane function:**

<b>a) Polyene Macrolides</b>	
Amphotericin B	2-4 mg/ml DMF; 30-40 mg/ml DMSO; soluble in H <sub>2</sub> O with Na-deoxycholate
Nystatin	4 mg/ml H <sub>2</sub> O; 11.2 mg/ml Methanol; 1.2 mg/ml Ethanol; soluble in DMF
<b>b) Peptides</b>	
Polymyxin B sulphate	> 20 mg/ml H <sub>2</sub> O; 0.3 mg/ml in Methanol; 0.1 mg/ml in Ethanol

**Inhibitors of protein synthesis**

<b>a) Aminoglycosides</b>	
Gentamicin sulphate	Freely soluble in H <sub>2</sub> O, insoluble in alcohol and acetone
Kanamycin sulphate	1:1 in H <sub>2</sub> O; insoluble in alcohol and acetone
Neomycin sulphate	1:3 in H <sub>2</sub> O; insoluble in acetone
Streptomycin sulphate	> 20 mg/ml in H <sub>2</sub> O; 0.85 mg/ml in Methanol; 0.3 mg/ml in Ethanol
<b>b) Tetracyclines</b>	
7-Chlortetracycline x HCl	8.6 mg/ml in H <sub>2</sub> O; 17.4 mg/ml in Methanol; soluble in sol. Of alkali-hydroxide and carbonate; insoluble in acetone
Oxytetracycline x HCl (7-Hydroxy-Tetracycline)	6.9 mg/ml in H <sub>2</sub> O; 16.3 mg/ml in MeOH; 11.9 mg/ml Ethanol
Tetracycline x HCl	10.9 mg/ml in H <sub>2</sub> O; > 20 mg/ml MeOH; 7.9 mg/ml in Ethanol
Tetracycline base	1.7 mg/ml in H <sub>2</sub> O; > 20 mg/ml in MeOH; > 20 mg/ml in Ethanol
<b>c) Macrolides</b>	
Erythromycin base	2.1 mg/ml in H <sub>2</sub> O; > 20mg/ml in MeOH; > 20 mg/ml in Ethanol
Tylosin Tartrate	1:10 in H <sub>2</sub> O; soluble in CHCl <sub>3</sub> ; slightly soluble in alcohol
<b>d) Other</b>	
Licomycin x HCl	1:2 in H <sub>2</sub> O; 1:40 in alcohol; 1:20 in DMF
Tiamutin (Tiamulin Fumarate)	soluble in H <sub>2</sub> O
Chloramphenicol	4.4 mg/ml in H <sub>2</sub> O; > 20 mg/ml in Methanol

**List of antibiotics together with their recommended concentration  
and stability at 37°C in days**

<b>Antibiotic</b>	<b>Conc. (ug/ml)</b>	<b>Stability at 37°C (days)</b>
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<b>Inhibitor of cell wall synthesis</b>		
	<b>recom.</b>	<b>toxic</b>
Ampicillin trihydrate	100 U	3
Carbenicillin, Na <sub>2</sub> -salt	100 U	3
Penicillin sodium	100 U	10.000
Ampicillin sodium	100 U	3

<b>Inhibitor of cell membrane function:</b>		
<b>a) Polyene Macrolides</b>		
Amphotericin B	2.5	30
Nystatin	50	600
<b>b) Peptides</b>		
Polymyxin B sulphate	50	3.000

<b>Inhibitors of protein synthesis</b>		
<b>a) Aminoglycosides</b>		
Gentamycin sulphate	50	3.000
Kanamycin sulphate	100	10.000
Neomycin sulphate	50	3.000
Streptomycin sulphate	100	20.000
<b>b) Tetracyclines</b>		
7-Chlortetracycline x HCl	10	80
Oxytetracycline x HCl (7-Hydroxy-Tetracycline)	5	25
Tetracycline x HCl	10	35
Tetracycline base	10	35
<b>c) Macrolides</b>		
Erythromycin base	100	300
Tylosin Tartrate	10	300
<b>d) Other</b>		
Licomycin x HCl	100	4
Tiamutin (Tiamulin Fumarate)	10	4
Chloramphenicol	5	30