

Calbiochem®



Antibiotics

You Have a Wide Choice

Antibiotics are natural substances secreted by microorganisms that are toxic to other microorganisms, but are generally non-toxic toward higher organisms. The modern age of antibiotics began in the late 1920s, when Alexander Fleming discovered that the mold *Penicillium notatum* was able to block bacterial growth. Natural antibiotics had inadvertently been used for centuries, but with Fleming's discovery, the full potential of antibiotics could be appreciated.

The key advantage of some antibiotics is their ability to selectively target a microorganism's metabolic pathway without seriously affecting the eukaryotic host. Because many metabolic activities of the bacterial cell differ from those in the mammalian cell, these differences in antibiotics can be exploited to develop new agents. Furthermore, antibiotic resistance has proven to be advantageous in a variety of research applications.

Four primary methods by which antibiotics act on bacteria are:

- inhibition of cell wall synthesis
- inhibition of protein synthesis
- inhibition of nucleic acid synthesis
- inhibition of anti-metabolic activity or competitive antagonism

Antibiotics also can be categorized based on:

- narrow- or broad-spectrum
- Gram-positive or Gram-negative
- bacteriocidal or bacteriostatic

See
selection of
63 antibiotics
inside!



Selection Agents

Product	Description	Cat. No.	Size	Price
Ampicillin, Sodium Salt	A β -lactam antibiotic that inhibits bacterial cell-wall synthesis. Effective against Gram-negative bacteria.	171254	5 g 25 g	\$46 \$157
Ampicillin, Sodium Salt, Sterile, Tissue Culture Grade	A β -lactam antibiotic that inhibits bacterial cell-wall synthesis. Effective against Gram-negative bacteria.	171255	20 ml	\$40
NEW Ampicillin, Sodium Salt, Sterile-Filtered Aqueous Solution, Cell Culture-Tested	A β -lactam antibiotic that inhibits bacterial cell-wall synthesis. Effective against Gram-negative bacteria. Supplied at 100 mg/ml.	171257	10 ml	\$49
Anisomycin, <i>Streptomyces griseolus</i>	A reversible inhibitor of protein synthesis at the translation step.	176880	10 mg	\$47
Blasticidin S, Hydrochloride, <i>Streptomyces griseochromogenes</i>	Nucleoside antibiotic that specifically inhibits protein synthesis in both prokaryotes and eukaryotes.	203350	25 mg	\$102
NEW Blasticidin S, <i>Streptomyces</i> sp., Sterile-Filtered Aqueous Solution, Cell Culture-Tested	Nucleoside antibiotic that specifically inhibits protein synthesis in both prokaryotes and eukaryotes. Can be used to select transfected cells carrying <i>bsr</i> or <i>BSD</i> resistance genes. Supplied at 10 mg/ml.	203351	10 ml	\$349
Bleomycin Sulfate, <i>Streptomyces verticillus</i>	Mixture of cytotoxic glycopeptides that inhibits DNA synthesis by reacting with DNA and causing strand scission.	203401	15 U	\$425
BLEOCIN™, <i>Streptomyces verticillus</i> , Cell Culture-Tested	A unique antibiotic of the bleomycin family that cleaves double-stranded DNA and inhibits DNA synthesis. Useful for selection of clones in cells transfected with vectors containing a <i>ble</i> resistance marker.	203408	10 mg 100 mg 250 mg	\$47 \$138 \$333
NEW BLEOCIN™ <i>Streptomyces verticillus</i> , Sterile-Filtered, Aqueous Solution	A unique antibiotic of the bleomycin family that cleaves double-stranded DNA and inhibits DNA synthesis. Useful for selection of clones in cells transfected with vectors containing a <i>ble</i> resistance marker. Supplied at 20 mg/ml.	203410	10 ml	\$262
Carbenicillin, Disodium Salt	Synthetic penicillin derivative for ampicillin-resistant plasmids. Blocks bacterial cell wall formation. Effective against Gram-negative bacteria.	205805	250 mg	\$34
Chloramphenicol	Inhibits protein synthesis by binding to the 50S ribosomal subunit and blocking the formation of the peptide bond by inhibiting peptidyl transferase activity. It is a potent inhibitor of mitochondrial protein synthesis in eukaryotic cells.	220551	25 g 100 g 500 g	\$41 \$147 \$519
G 418 Sulfate, Cell Culture-Tested	An aminoglycoside antibiotic related to gentamycin that irreversibly binds to ribosomes and inhibits protein synthesis in prokaryotic and eukaryotic cells. Supplied at 50 mg/ml.	345810	250 mg 500 mg 1 g 5 g 25 g	\$36 \$47 \$61 \$193 \$859
G 418 Sulfate, Sterile-Filtered Aqueous Solution, Cell Culture-Tested	An aminoglycoside antibiotic related to gentamycin that irreversibly binds to ribosomes and inhibits protein synthesis in prokaryotic and eukaryotic cells.	345812	10 ml 20 ml 50 ml	\$52 \$94 \$167
Hygromycin B, <i>Streptomyces</i> sp., Cell Culture-Tested	An aminoglycoside antibiotic that blocks protein synthesis in prokaryotes and eukaryotes at the translocation step on the 70S ribosome and causes misreading of the mRNA.	400050	100 mg 500 mg 1 g 5 g	\$35 \$140 \$220 \$773
Hygromycin B, <i>Streptomyces</i> sp.	An aminoglycoside antibiotic that blocks protein synthesis in prokaryotes and eukaryotes at the translocation step on the 70S ribosome and causes misreading of the mRNA.	400051	100 KU 1 MU 5 MU 10 MU	\$41 \$127 \$497 \$883
Hygromycin B, <i>Streptomyces</i> sp., Sterile-Filtered Solution in PBS, Cell Culture-Tested	An aminoglycoside antibiotic that blocks protein synthesis in prokaryotes and eukaryotes at the translocation step on the 70S ribosome and causes misreading of the mRNA. Supplied at 50 mg/ml.	400052	1 ml* 5 ml 20 ml 50 ml	\$ \$35 \$115 \$231
Hygromycin B, <i>Streptomyces</i> sp., Sterile-Filtered Solution in 25 mM HEPES, Cell Culture-Tested	An aminoglycoside antibiotic that blocks protein synthesis in prokaryotes and eukaryotes at the translocation step on the 70S ribosome and causes misreading of the mRNA. Supplied at 50 mg/ml.	400053	5 ml 20 ml	\$35 \$115
Kanamycin Sulfate, <i>Streptomyces kanamyceticus</i>	An inhibitor of protein biosynthesis that acts on the 70S ribosome, causing misreading of the genetic code.	420311	5 g 25 g	\$52 \$203
Kanamycin Sulfate, <i>Streptomyces kanamyceticus</i> , Cell Culture-Tested	An inhibitor of protein biosynthesis that acts on the 70S ribosome, causing misreading of the genetic code.	420411	5 g 25 g	\$62 \$234
NEW Kanamycin Sulfate, Sterile-Filtered Aqueous Solution, Cell Culture-Tested	An inhibitor of protein biosynthesis that acts on the 70S ribosome, causing misreading of the genetic code. Supplied at 50 mg/ml.	402412	20 ml	\$78
Oxytetracycline, Hydrochloride	A member of the tetracycline family that inhibits bacterial protein synthesis by binding to the 30S ribosomal subunit.	500105	10 g 100 g	\$19 \$107
Penicillin/Streptomycin/Amphotericin B Solution (100X), Tissue Culture Grade	Contains 10,000 units/ml Penicillin G, Potassium Salt (Cat. No. 5161), 10,000 μ g/ml Streptomycin Sulfate, <i>Streptomyces</i> sp. (Cat. No. 5711), and 25 μ g/ml Amphotericin B, <i>Streptomyces</i> sp. (Cat. No. 171375).	516104	20 ml	\$35
Puromycin, Dihydrochloride	An aminonucleoside antibiotic that acts as a prokaryotic and eukaryotic protein synthesis inhibitor. Resembles the aminoacyl-adenylyl terminus of aminoacyl-tRNA and competes for binding to the A-site of the large ribosomal subunit.	540222	25 mg 100 mg	\$41 \$142

* Size available only in Europe.

Product	Description	Cat. No.	Size	Price
Puromycin, Dihydrochloride, Cell Culture-Tested	An aminonucleoside antibiotic that acts as a prokaryotic and eukaryotic protein synthesis inhibitor. Resembles the aminoacyl-adenyl terminus of aminoacyl-tRNA and competes for binding to the A-site of the large ribosomal subunit.	540411	25 mg 100 mg	\$50 \$163
Streptomycin Sulfate, <i>Streptomyces</i> sp.	Binds irreversibly to the 30S subunit of bacterial ribosomes and prevents the 50S ribosomal subunit from attaching to the translation initiation complex. Inhibits initiation, elongation, and termination of protein synthesis in prokaryotes and induces misreading of the genetic code.	5711	100 g	\$49
Tetracycline, Hydrochloride	An antibiotic that inhibits bacterial protein synthesis by reversibly binding to the 30S ribosomal subunit, preventing binding of aminoacyl tRNA to the A-site and blocking translocation.	58346	10 g 25 g 50 g	\$30 \$41 \$75
Tetracycline, Hydrochloride, Cell Culture-Tested	An antibiotic that inhibits bacterial protein synthesis by reversibly binding to the 30S ribosomal subunit, preventing binding of aminoacyl tRNA to the A-site and blocking translocation.	583411	10 g 25 g 50 g	\$41 \$59 \$105
Thiostrepton	Inhibits bacterial protein synthesis and ribosomal GTPase activity by binding non-covalently, but virtually irreversibly, to the 23S rRNA in the GTPase center of the 50S subunit. Thiostrepton binding directly prevents elongation factor G binding to the ribosome.	598226	1 g 10 g	\$79 \$524

Other Antibiotics

Product	Description	Cat. No.	Size	Price
Actinomycin D, <i>Streptomyces</i> sp.	Antineoplastic antibiotic that inhibits DNA-primed RNA polymerase by complexing with DNA via deoxyguanosine residues. At higher concentrations, DNA polymerase is inhibited.	114666	5 mg 1 set	\$76 \$127
Amphotericin B, <i>Streptomyces</i> sp.	A polyene antifungal antibiotic that non-specifically induces loss of low molecular weight substances from cells. Binds to sterols and disrupts osmotic integrity of fungal membrane.	171375	100 mg	\$46
Bacitracin	A polypeptide antibiotic and peptidase inhibitor. Inhibits bacterial cell wall synthesis in Gram-positive bacteria.	1951	250 KU	\$32
Cefotaxime, Sodium Salt	Inhibits bacterial cell wall synthesis. β -lactamase-resistant. Active against Gram-positive and Gram-negative bacteria.	219380	2 g	\$175
Chromomycin A ₃	Antitumor antibiotic that inhibits RNA synthesis.	230752	10 mg	\$126
Cycloheximide	An antifungal antibiotic that inhibits protein synthesis in eukaryotes but not in prokaryotes. Interacts directly with the translocase enzyme, interfering with the translocation step.	239763	1 g 5 g	\$59 \$175
InSolution™ Cycloheximide	An antifungal antibiotic that inhibits protein synthesis in eukaryotes but not in prokaryotes. Interacts directly with the translocase enzyme, interfering with the translocation step. Supplied at 100 mg/ml.	239765	1 ml	\$61
Cycloheximide, High Purity	An antifungal antibiotic that inhibits protein synthesis in eukaryotes but not in prokaryotes. Interacts directly with the translocase enzyme, interfering with the translocation step.	239764	100 mg 1 g	\$35 \$127
Daunorubicin, Hydrochloride	Potent anticancer agent that inhibits RNA and DNA synthesis by intercalating into DNA. Inhibits eukaryotic topoisomerases I and II.	251800	5 mg	\$63
Doxorubicin, Hydrochloride	An anti-tumor antibiotic and a highly effective myotoxin that inhibits topoisomerase II (IC ₅₀ = 100 nM).	324380	10 mg	\$155
Erythromycin, <i>Streptomyces erythreus</i>	An antibacterial agent. Inhibits bacterial protein synthesis by binding to the 23S RNA in 50S ribosome.	329815	5 g 25 g	\$40 \$104
Gentamycin Sulfate	Broad-spectrum antibiotic that inhibits protein synthesis by binding to the 50S ribosomal subunit.	345814	1 g	\$60
NEW Gentamycin Sulfate, Sterile-Filtered Aqueous Solution, Cell Culture-Tested	Broad-spectrum antibiotic that inhibits protein synthesis by binding to the 50S ribosomal subunit. Supplied at 50 mg/ml.	345815	20 ml	\$78
Gramicidin A, High Purity, <i>Bacillus brevis</i>	Pentadecapeptide. Renders membranes permeable to protons and alkali metal ions.	368020	25 mg	\$231
Minocycline, Hydrochloride	A member of the tetracycline family with long half-life. Inhibits bacterial protein synthesis by binding to the 30S bacterial ribosome.	475843	50 mg	\$50
Mitomycin C, <i>Streptomyces caespitosus</i>	Antibiotic and carcinostatic agent. Inhibits DNA synthesis by cross-linking DNA at guanine and adenine residues.	47589	2 mg	\$126
Mitomycin C, <i>Streptomyces caespitosus</i> , Carrier-Free	Antibiotic and carcinostatic agent. Inhibits DNA synthesis by cross-linking DNA at guanine and adenine residues.	475820	10 mg	\$115
Mycophenolic Acid	An immunosuppressive agent that inhibits <i>de novo</i> purine nucleotide synthesis via inhibition of inosine monophosphate dehydrogenase and prevents the formation of XMP and GMP.	475913	100 mg 500 mg	\$70 \$265
Neomycin Sulfate, γ -Irradiated, Tissue Culture Grade	An aminoglycoside antibiotic that inhibits translation by binding to the 30S ribosomal subunit.	480100	20 ml	\$57
Nystatin, <i>Streptomyces noursei</i> , Sterile, Tissue Culture Grade	Antifungal antibiotic effective against yeast and mycoplasma. Binds to ergosterol in fungal cell membrane-forming pores.	475921	50 mg	\$35

Product	Description	Cat. No.	Size	Price
Oligomycin	A mixture of A, B, and C isomers. A macrolide antibiotic that inhibits membrane-bound mitochondrial ATPase (F1), preventing phosphoryl group transfer. Induces apoptosis in cultured human lymphoblastoid and other mammalian cells.	495455	10 mg	\$69
Paromomycin Sulfate	An aminoglycoside antibiotic containing 5 amino groups that exhibits antibacterial and antiamebic activity.	512731	5 g	\$75
Penicillin G, Potassium Salt	Anti-bacterial. Inhibits bacterial cell wall synthesis. Effective against Gram-positive bacteria.	5161	25 MU 100 MU	\$30 \$78
Polymyxin B Sulfate	An antibiotic that inhibits phospholipid sensitive Ca ²⁺ -dependent protein kinase. Mixture of polymyxin B1 sulfate and polymyxin B2 sulfate. Effective against Gram-negative bacteria.	5291	500 mg 1 g 5 g	\$32 \$52 \$216
NEW Polymyxin B Sulfate, Sterile-Filtered Aqueous Solution, Cell Culture-Tested	An antibiotic that inhibits phospholipid sensitive Ca ²⁺ -dependent protein kinase. Mixture of polymyxin B1 sulfate and polymyxin B2 sulfate. Effective against Gram-negative bacteria. Supplied at 50 mg/ml.	420413	20 ml	\$110
Rifampicin	Antibiotic that specifically inhibits DNA-dependent bacterial RNA polymerase by forming an inactive complex with RNA polymerase. Does not affect mammalian RNA polymerase.	557303	1 g 5 g	\$61 \$237
Spectinomycin, Dihydrochloride, Pentahydrate, <i>Streptomyces</i> sp.	Inhibits protein synthesis by binding to the 30S ribosomal subunit to prevent the formation of an initiation complex with messenger RNA.	567570	10 g	\$126
Streptozotocin	Causes DNA alkylation and DNA strand breaks in pancreatic islet cells.	572201	250 mg 1 g	\$50 \$152
Tobramycin, Free Base	Binds irreversibly to the 30S subunit of bacterial ribosomes and prevents the 50S ribosomal subunit from attaching to the translation initiation complex.	614005	100 mg	\$51
Triclosan	A potent antibacterial, antifungal agent that inhibits bacterial fatty acid synthesis by selectively targeting FabI encoded enoyl-acyl carrier protein (ACP) reductase.	647950	1 g	\$54
Tunicamycin, <i>Streptomyces lysosuperficus</i>	A nucleoside antibiotic that inhibits N-linked glycosylation and blocks the formation of N-glycosidic protein-carbohydrate linkages.	654380	10 mg 50 mg	\$110 \$326
Valinomycin, <i>Streptomyces fulvissimus</i>	A cyclododecapepsi-peptide ionophore antibiotic. Highly selective for K ⁺ .	676377	25 mg 100 mg	\$68 \$234
Vancomycin, Hydrochloride, <i>Streptomyces orientalis</i>	Amphoteric glycopeptide antibiotic. Acts by inhibiting bacterial cell wall synthesis. Very effective against Gram-positive bacteria.	627850	250 mg	\$51
NEW Virstatin	A cell-permeable naphthalimide compound that inhibits virulence regulation in <i>Vibrio cholerae</i> .	677520	25 mg	\$97

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