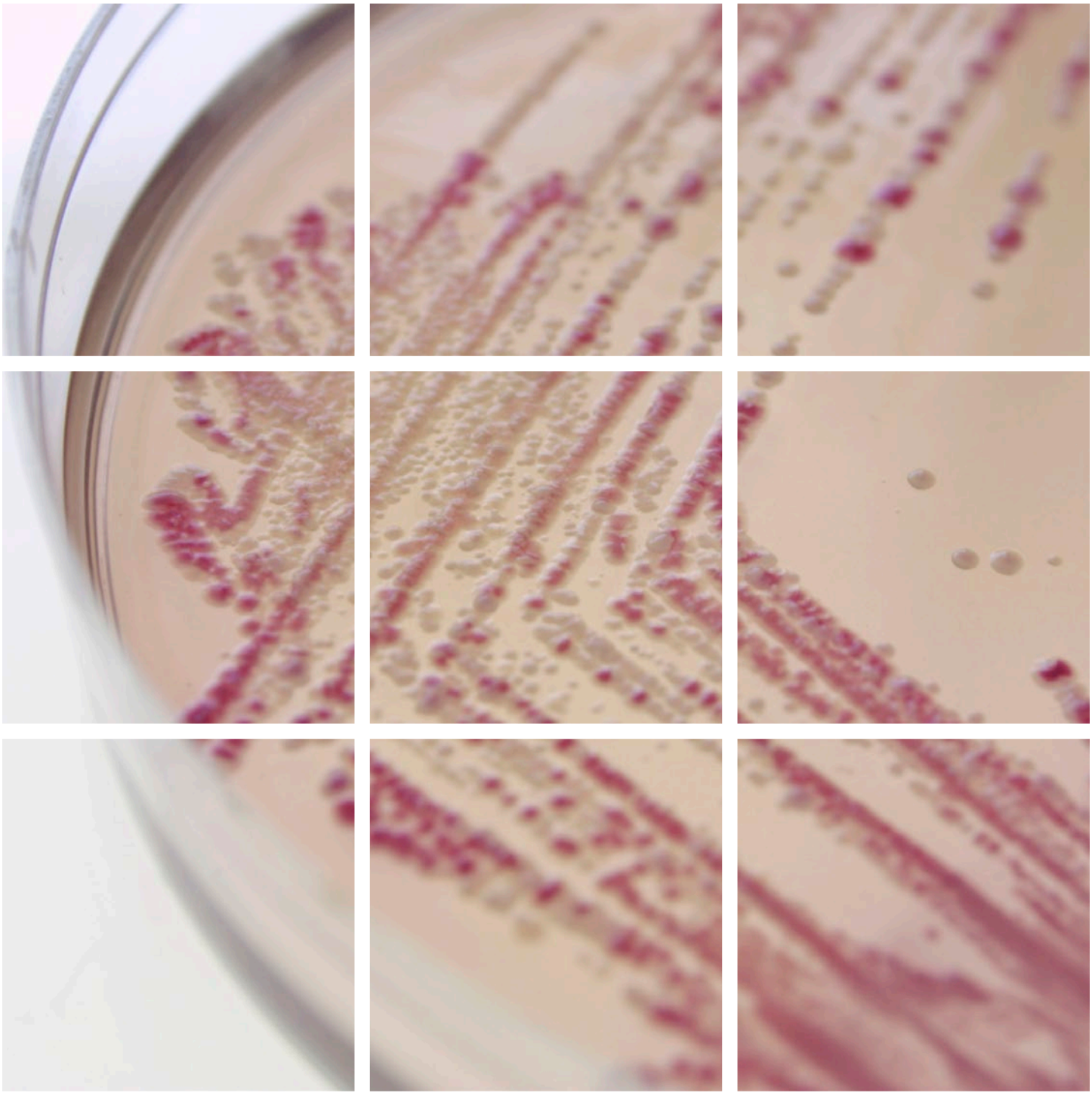
CORNING

Antibiotic and Antimycotic Products



Contents

Corning products include antibiotics and antimycotics for microbiological/mammalian cell culture selection or prophylactic control of contamination due to bacteria, fungi, mycoplasma, or yeast.

Introduction to Antibiotics

Type of Antibiotic, Application, and Mode of Action

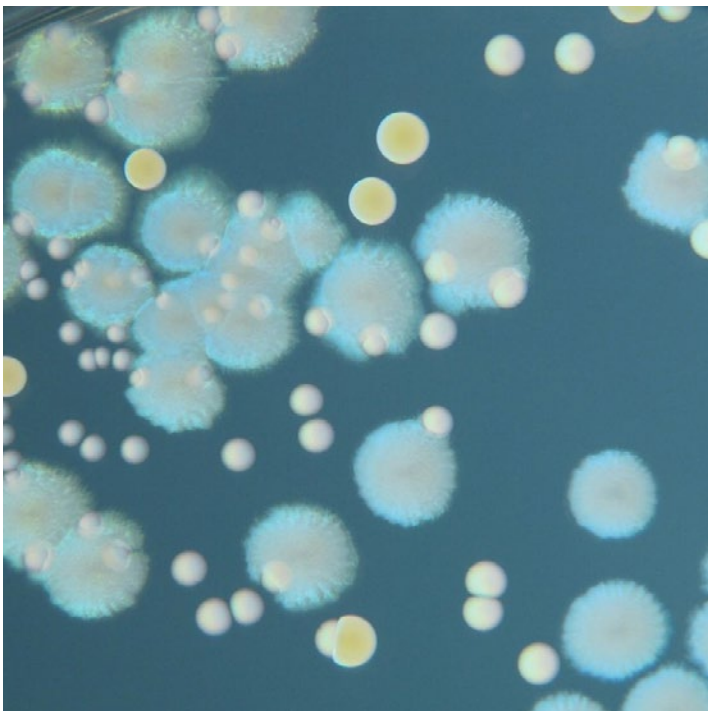
Penicillin G is a narrow-spectrum Gram-positive bacterial antibiotic. Penicillin concentrates are often used with streptomycin prophylactically in cell culture. Penicillin G inhibits cell wall synthesis and is, therefore, bactericidal to actively growing cells.

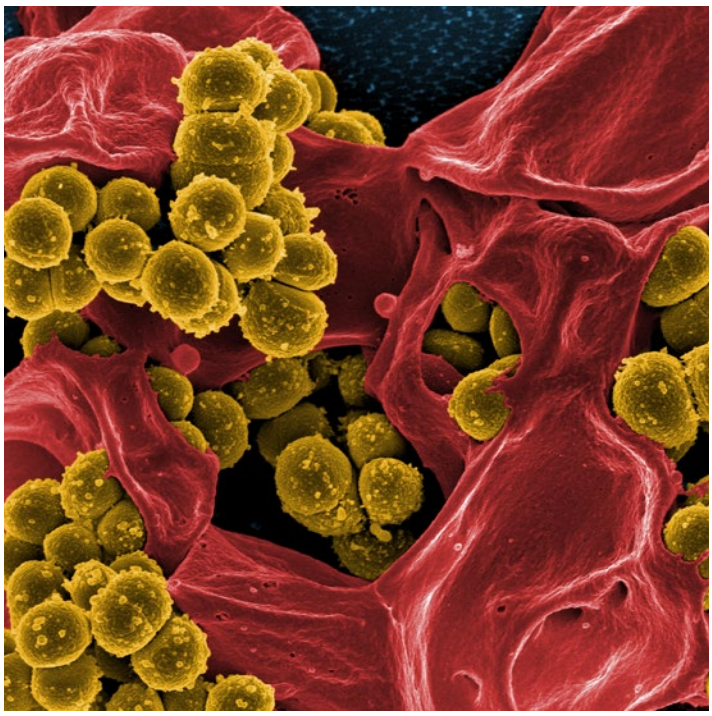
G418 Sulfate is a selection agent for cells transformed using the aminoglycoside-modifying enzyme aminoglycoside phosphotransferase (APH). This enzyme covalently modifies the antibiotic's amino or hydroxyl functions to weaken the drug-ribosome interaction.

Ampicillin is a narrow-spectrum Gram-positive bacterial antibiotic. Ampicillin is commonly used as a selection agent when transforming bacteria. It inhibits cell wall synthesis and is, therefore, bactericidal to actively growing cells.

Carbenicillin is recommended as a substitute for ampicillin at the same concentration in molecular biology applications. Carbenicillin demonstrates improved heat stability over ampicillin when used in growth media and reduces the presence of satellite colonies commonly seen with ampicillin.

Hygromycin B, produced by *Streptomyces hygroscopicus*, is used as a selection agent and inhibits protein synthesis in cells not carrying hygromycin phosphotransferase (HPH). HPH inactivates hygromycin B and restores protein synthesis.





Tetracycline inhibits protein synthesis by binding to the 30S ribosomal subunit, thereby blocking the incoming aminoacyl-tRNA from attaching to the acceptor site on the mRNA-ribosome complex. The tetracyclines consist of a polycyclic ring with differing side chains and are a broad-spectrum class of antibiotics against bacterial aerobes and anaerobes. The effect of this bacteriostatic compound is reduced by dilution, and it's activity can be reduced by chelation with divalent cations.

Amphotericin B is an antifungal, produced by *Streptomyces nodosus*. It is often paired with penicillin and streptomycin to provide a broad-spectrum antibacterial, antimycotic prophylactic in cell culture. It can also be used to treat fungus and yeast contamination. Amphotericin actively binds sterols, a component of the fungal membrane, leading to formation of pores that compromise cell membrane integrity, allowing leakage.

Puromycin, produced by *Streptomyces alboniger*, is a selection agent for cells transformed with the puromycin N acetyl-transferase (PAC) gene encoding resistance.

Ciprofloxacin is a fluoroquinolone antibiotic effective against a wide range of Gram-positive and Gram-negative bacteria. It is well known for its effectiveness against mycoplasma and can be used prophylactically or to treat mycoplasma or bacterial infections. The antibiotic works by interfering with the bacterial enzyme DNA gyrase, which is essential in all bacterial growth phases.

Chloramphenicol is a broad-spectrum bacteriostatic antibiotic. Chloramphenicol is one of the oldest isolated antibiotics, and is most commonly used as a microbiological selection agent. It prevents protein synthesis by inhibiting elongation at the peptidyltransferase step on the 50S ribosomal subunit.

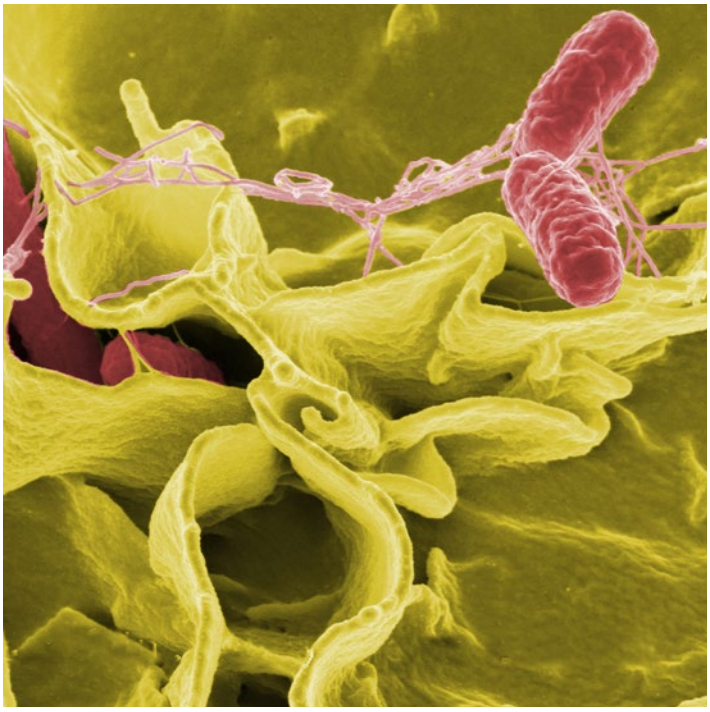
Gentamycin is a broad-spectrum aminoglycoside antibiotic. Gentamycin can be used prophylactically in cell culture or as a microbiological selection agent. Bacterial protein biosynthesis is inhibited by the binding of gentamycin to the 30S subunit of the ribosome.

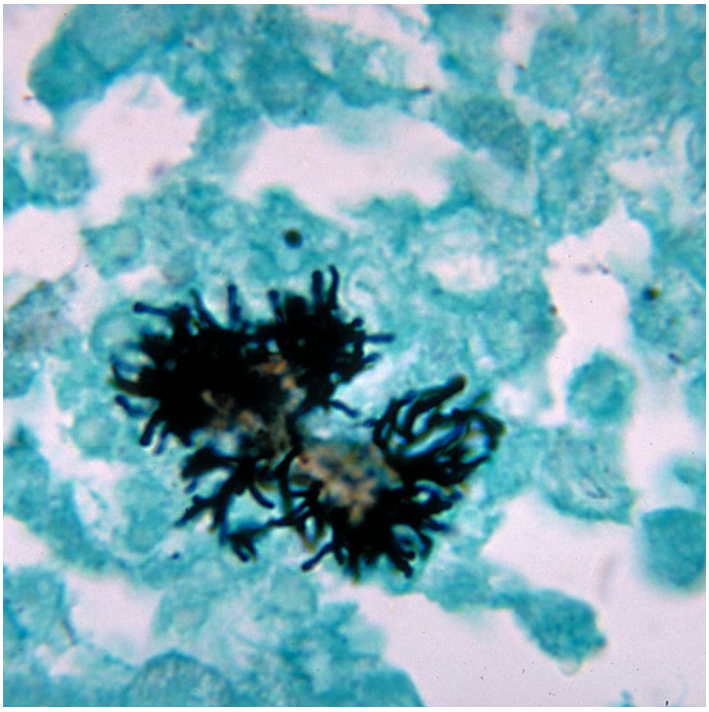
Kanamycin is a bacteriocidal aminoglycoside antibiotic. It is effective against mycoplasma, Gram-positive, and Gram-negative bacteria. Kanamycin can be used prophylactically in cell culture or as a microbiological selection agent. It inhibits protein biosynthesis by binding to the 30S ribosomal subunit.

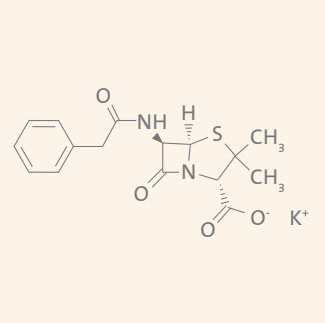
Neomycin is a broad-spectrum aminoglycoside antibiotic effective on both Gram-positive and Gram-negative bacteria. It can be used as a selection agent in cell culture and microbiology. It inhibits protein biosynthesis by binding to the 30S ribosomal subunit.

Streptomycin, derived from *Streptomyces griseus*, is a broad-spectrum aminoglycoside antibiotic effective on both Gram-positive and Gram-negative bacteria. Streptomycin in combination with penicillin is used to prevent bacterial infection in cell culture and can also be used as a microbiological selection agent. It inhibits protein biosynthesis by binding to the 30S ribosomal subunit.

Blasticidin S is a peptidylnucleoside antibiotic produced by *Streptomycin griseochromogenes*, and is a potent inhibitor of protein synthesis in both prokaryotes and eukaryotes. It can be used as a selection agent in both cell culture and microbiological applications. Blasticidin S inhibits protein synthesis at the level of peptide bond formation.







Molecular structure

Penicillin-Streptomycin solution, 100x, 10,000 I.U. Penicillin 10,000 µg/mL Streptomycin (Cat. No. 30-002-CI), 100 mL

Penicillin

Antibiotics of the penicillin class are derivatives of 6-aminopenicillanic acid consisting of a ß-lactam ring linked to a thiazolidine ring and a side chain. This nucleus is from the condensation of the amino acids L-cysteine and D-valine. The function of penicillins is to inhibit protein synthesis through activity associated with the ß-lactam ring.

The spectrum of bacteria against which penicillins are effective depends on the side chain of individual congeners. The ß-lactam blocks transpeptidation through association with the penicillin-binding proteins (PBPs). These antibiotics are analogs of the substrate, D-alanyl-D-alanine, whose bond is normally broken to form the cross-bridge glycines in transpeptidation. This analog competes for the binding of PBPs. As a result, no cross-bridges are formed and the cell wall becomes weak and eventually ruptures.

Penicillin is inactive against cells with previously made cell walls; it works only against the synthesis of new cell walls and is, as a result, bacteriocidal only to actively growing cells.

Penicillin is a narrow-spectrum antibiotic against Gram-positive bacteria. Because the activity is derived from the ß-lactam ring, Staphylococcal ß-lactamase confers resistance through cleavage of the ß-lactam ring. Some of the congeners include penicillin G (benzyl penicillin), ampicillin, carbenicillin, and amoxicillin.

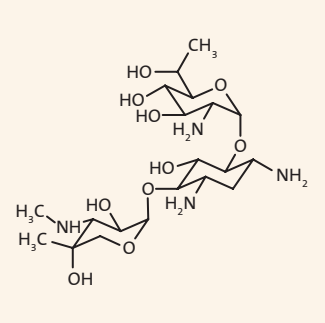
Penicillin G has narrow-spectrum activity against Gram-positive cocci, however, it is sensitive to penicillinase, making most strains of *Staphylococcus aureus* resistant.

Product Specifications

Mode of Action	Inhibitor of transpeptidation at the final stage of the reaction, thereby preventing the formation of cross-bridges
Spectrum	Gram (+)
Microbiological Potency	≥1580 I.U./mg
Conferred Resistance	ß-lactamases, a change in cell wall permeability, or a change in the penicillin-binding proteins
Molecular Weight	372.5
Formula	$C_{16}H_{17}KN_2O_4S$
Appearance	Liquid: Colorless Powder: White to off-white
Working Concentration	100 I.U./mL
Storage and Stability	Penicillin (solutions) Frozen (-25°C to -15°C) Protected from light

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
30-001-CI	Penicillin-Streptomycin solution, 50x 5,000 I.U./mL Penicillin, 5,000 µg/mL Streptomycin	100 mL	6
30-002-CI	Penicillin-Streptomycin solution, 100x 10,000 I.U./mL Penicillin, 10,000 µg/mL Streptomycin	100 mL	6
30-009-CI	Penicillin-Streptomycin solution with L-Glutamine, 100x, 10,000 I.U./mL Pencillin, 10,000 µg/mL Streptomycin 29.2 mg/mL L-Glutamine	100 mL	6
30-004-CI	Antibiotic-Antimycotic solution 10,000 I.U./mL Penicillin, 10,000 µg/mL Streptomycin 25 µg/mL Amphotericin with 8.5 g/L NaCl	100 mL	6



Molecular structure

G418 Sulfate, liquid 50 mg/mL solution (Cat. No. 30-234-CI), 100 mL

G418

G418 is an aminoglycoside active against aerobic and facultative aerobic Gram-negative bacilli, as well as some Gram-positive bacteria. In general, this antibiotic is used for selection of transformants expressing an aminoglycoside-modifying enzyme. The structure of G418 consists of the dibasic cyclitol ring, 2-deoxystreptamine, linked to aminated sugars through a glycosidic bond.

Aminoglycosides bind irreversibly to ribosomes and inhibit protein synthesis by disrupting their proofreading capability, leading to pre-termination or mistranslation. Inhibition of synthesis is most effective on actively growing cells.

The structural uniqueness of G418 stems from a hydroxyl function rather than an amino function at the C-6's position. This difference enables specific binding to the 80S ribosome complex and, thereby, makes G418 a more effective inhibitor of eukaryotic protein synthesis, as compared to other aminoglycosides that bind non-specifically to eukaryotic cells.

G418 sulfate inhibitors include a class of aminoglycoside-modifying enzymes, the aminoglycoside phosphotransferases (APH), that covalently modify the antibiotic's amino or hydroxyl functions to weaken the drug-ribosome interaction.

Aminoglycoside-modifying enzymes are associated with plasmids and transposons; an *aph(3)* gene is a common resistance marker associated with Tn5.

The effective killing concentration of the antibiotic will vary by cell type, media, growth conditions, density, as well as the cell's metabolic rate and position in the cell cycle. When using G418 sulfate in a new cell system, a full dose curve is suggested, and several points on that curve should be retested with each new lot of G418 sulfate.

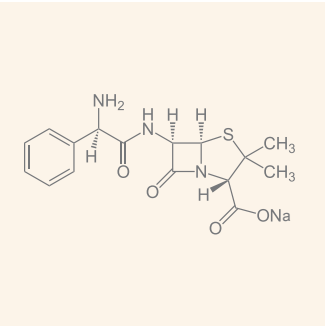
Product Specifications

Mode of Action	Binds to the prokaryotic 30S and eukaryotic 80S ribosomal subunits and affects the fidelity of translation
Spectrum	- Gram (+) prokaryotes - Gram (-) bacilli aerobes and facultative anearobes, only. - Eukaryotes
Microbiological Potency	Liquid: 50 µg/mL Powder: >700 µg/mg G418 is soluble in water (50 mg/mL)
Conferred Resistance	Aminoglycoside-modifying enzymes and change in cell permeability or a change in ribosomal structure
Molecular Weight	692.7
Formula	$C_{20}H_{40}N_4O_{10} * {}_2H_2SO_4$
Appearance	Liquid: Colorless Powder: White to off-white
Working Concentration	100 to 5,000 µg/mL
Storage and Stability	Liquid: 2°C to 8°C Powder: 15°C to 30°C Protected from light

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
30-234-CR	G418 Sulfate, liquid 50 mg/mL solution	10 mL	1
30-234-CI	G418 Sulfate, liquid 50 mg/mL solution	100 mL	1
61-234-RF	G418 Sulfate, powder	1 g	1
61-234-RG	G418 Sulfate, powder	5 g	1
61-234-RK	G418 Sulfate, powder	50 g	1

Ampicillin, Sodium Salt



Molecular structure

Ampicillin is a semi-synthetic penicillin. Antibiotics of the class penicillins are derivatives of 6-aminopenicillanic acid consisting of a ß-lactam ring linked to a thiazolidine ring and a side chain. This nucleus is from the condensation of the amino acids L-cysteine and D-valine. The function of penicillins is to inhibit protein synthesis through activity associated with the ß-lactam ring. Spectra are dependent on the side chain of individual congeners. The ß-lactam blocks transpeptidation through association with the penicillin-binding proteins (PBPs).

These antibiotics are analogs of the substrate, D-alanyl-D-alanine, whose bond is normally broken to form the cross-bridge glycines in transpeptidation. This analog competes for the binding of PBPs. As a result, no cross-bridges are formed and the cell wall becomes weak and eventually ruptures. Penicillins are inactive against cells with previously made cell walls. They work only against the synthesis of new cell walls and are, as a result, bacteriocidal to actively growing cells.

Ampicillin, Sodium salt, powder (Cat. No. 61-238-RM), 100 g

Because the activity of the antibiotic is derived from the ß-lactam ring, ß-lactamases (enzymes that destroy the ß-lactam ring) confer resistance to the antibiotic thereby enabling the cell to grow in the presence of the antibiotic.

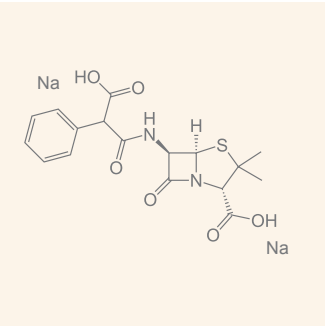
Product Specifications

Formula	$C_{16}H_{18}N_3O_4SNa$
Molecular Weight	371.4 g/mol
Synonyms	D[-]-α-aminobenzylpenicillin
Storage and Stability	2°C to 8°C

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
61-238-RH	Ampicillin, Sodium salt, powder	10 g	1
61-238-RM	Ampicillin, Sodium salt, powder	100 g	1

Carbenicillin, Disodium Salt



Molecular structure

Carbenicillin Disodium salt, powder (Cat. No. 46-100-RG), 5 g

Carbenicillin is recommended as a substitute for ampicillin at the same concentration in molecular biology applications. Both ampicillin and carbenicillin are semi-synthetic penicillins related to penicillin. Carbenicillin is penicillin with a carboxyl and benzyl group, whereas ampicillin is an aminopenicillin. Carbenicillin inhibits cell wall synthesis in peptidoglycan crosslinking because it is a member of the penicillin family of antibiotics.

Carbenicillin demonstrates improved stability over ampicillin when used in growth media. It is more resistant to heat and low pH-induced degradation over time making it particularly useful for large-scale liquid culture growth. It also reduces the presence of satellite colonies seen with ampicillin. Satellite colonies are very small colonies visible on the plate that will grow very close to the larger colonies to survive. These cells are not resistant themselves, so they must grow near the antibiotic-resistant colonies that are destroying the antibiotic in their immediate vicinity.

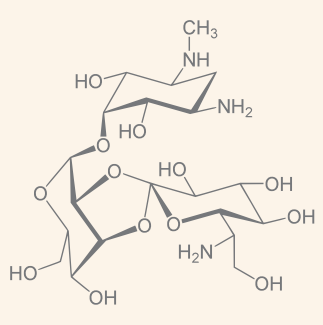
Satellite colonies develop with antibiotics such as ampicillin because ß-lactamases destroy the antibiotic outside of the cell. Satellites are more likely to develop if the ampicillin plate is old, resulting in partial degradation of the antibiotic. Carbenicillin, being more stable than ampicillin and less labile to ß-lactamase activity, reduces the presence of satellites.

Product Specifications

Formula	$C_{17}H_{18}N_2O_6SNa_2$
Molecular Weight	422.4 g/mol
Synonyms	alpha-Carboxybenzylpenicillin disodium salt
Storage and Stability	2°C to 8°C

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
46-100-RG	Carbenicillin Disodium salt, powder	5 g	1



Molecular structure

Hygromycin B solution
(Cat. No. 30-240-CR), 20 mL

Hygromycin B

Hygromycin B is an aminoglycoside antibiotic used for the selection and maintenance of prokaryotic and eukaryotic cells transformed with *hph*, the hygromycin B resistance gene. Produced by *Streptomyces hygroscopicus*, this bacteriocidal antibiotic inhibits protein synthesis in bacteria, fungi, and higher eukaryotic cells that do not carry the *hph* gene.

Inhibition of protein synthesis is due to mistranslation resulting from the disruption of translocation at the 70S ribosome. The gene *hph* encodes a 39 kDa protein (hygromycin phosphotransferase) that inactivates hygromycin B through phosphorylation and restores protein synthesis.

The appropriate working concentration of hygromycin B for selection will vary with cell type, media, growth conditions, and the cell's metabolic rate and cycle stage. For example, cell sensitivity is dependent on the pH of the medium, such that sensitivity increases directly with pH. Antibiotic potency is also dependent on cell density; a higher dosage may be required to kill susceptible cells in high density cultures. This characteristic may be due to detoxification from limited endogenous phosphotransferase.

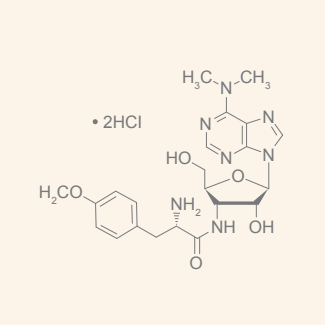
To overcome these variables and ensure success, the working concentration should ideally be determined experimentally for each unique culture system, as well as whenever new variables are introduced. The working concentration may be determined by performing a dose response curve.

Product Specifications

Mode of Action	Binds to the 30S ribosomal subunit and affects the fidelity of translation
Spectrum	Gram (+) bacteria, Gram (-) bacilli aerobes and facultative anearobes, only; higher and lower eukaryotes
Microbiological Potency	50 mg/mL in PBS
Conferred Resistance	Aminoglycoside-modifying enzymes, a change in cell permeability, or a change in ribosomal structure
Molecular Weight	527.54
Formula	$C_{20}H_{37}N_3O_{13}$
Appearance	Amber-colored liquid (light yellow to dark brown)
Working Concentration	50 µg/mL to 1 mg/mL
Storage and Stability	Refrigerated (2°C to 8°C) Protected from light Do not autoclave

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
30-240-CR	Hygromycin B solution	20 mL	1



Molecular structure

Puromycin Dihydrochloride, powder (Cat. No. 61-385-RA), 100 mg

Puromycin Dihydrochloride

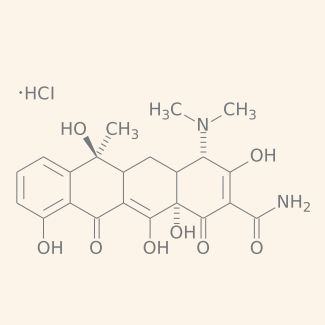
Puromycin dihydrochloride is isolated from *Streptomyces alboniger* as a broad-spectrum amino-nucleoside antibiotic. Puromycin dihydrochloride is active against Gram-positive bacteria and weakly active against Gram-negative bacteria. The mechanism of action involves premature release of nascent polypeptide chains by the addition of puromycin dihydrochloride to the growing peptide chain. Protein synthesis is inhibited in both prokaryotic and eukaryotic cells that do not express the puromycin-N-acetyl-transferase (*pac*) gene encoding resistance. Puromycin dihydrochloride is as effective as Hygromycin B and G418, and selection can be achieved in 2 to 3 days. Stock solutions may be prepared by dissolving the antibiotic in deionized water. When filter-sterilized (0.22 micron filter), stock solution may be stored at 4°C for up to 1 year. The stock solution may also be divided into aliquots and stored frozen for greater stability. The effective killing concentration of the antibiotic will vary as to cell type, media, growth conditions, and density, as well as the cell's metabolic rate and position in the cell cycle. When using puromycin dihydrochloride in a new cell system, a full dose curve is suggested. Several points on that curve should be retested with each new lot of puromcin dihydrochloride.

Product Specifications

Purity	≤98%
Mode of Action	Aminoacyl tRNA mimic, causing premature polypeptide chain termination
Spectrum	Gram (+) bacteria Gram (-) bacilli aerobes and facultative anaerobes only; higher and lower eukaryotes
Conferred Resistance	Puromycin-modifying enzymes
Molecular Weight	544.4
Formula	$C_{22}H_{29}N_7O_5$ * 2HCl
Appearance	White to off-white powder
Working Concentration	0.5 to 10 µg/mL
Storage and Stability	Frozen (-25°C to -15°C) Protected from light

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
61-385-RA	Puromycin Dihydrochloride, powder	100 mg	1



Molecular structure

Tetracycline Hydrochloride, powder (Cat No. 61-242-RG), 5 g

Tetracycline Hydrochloride

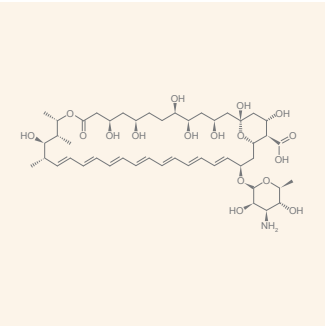
The tetracyclines consist of a polycyclic ring with differing side chains. They are a broad-spectrum class of antibiotics against aerobes and anaerobes. Members of this class inhibit protein synthesis by binding to the 30S ribosomal subunit thereby blocking the incoming aminoacyl-tRNA from attaching to the acceptor site on the mRNA-ribosome complex. The congener tetracycline is a product of *Streptomyces aureofaciens* fermentation. Tetracyclines are bacteriostatic and their effects are reduced by dilution and by chelation with divalent cations. The tetracyclines are broad-spectrum antibiotics, but resistance to one congener confers resistance to all congeners.

Product Specifications

Mode of Action	Binds to the 30S ribosomal subunit thereby blocking the incoming aminoacyl-tRNA from attaching to the acceptor site on the mRNA-ribosome complex
Conferred Resistance	A change in cell permeability
Molecular Weight	480.9
Formula	$C_{22}H_{24}N_2O_8 \cdot HCl$
Appearance	White, crystalline powder
Working Concentration	10 µg/mL
Storage and Stability	Frozen (-25°C to -15°C) Protected from light
Notes on Preparation	Tetracycline hydrochloride is freely soluble in water, but its potency is reduced at a pH below 2. Also, alkali hydroxides will cause hydrolysis and precipitation of tetracycline. Store stock solutions frozen, protected from light.

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
61-242-RG	Tetracycline Hydrochloride, powder	5 g	1



Molecular structure

Amphotericin B, liquid 250 µg/mL solubilized (Cat. No. 30-003-CF), 50 mL

Amphotericin B

Amphotericin B, a polyene macrolide, is an antifungal produced by *Streptomyces nodosus*. Congeners of the polyenes consist of four to seven conjugated double bonds linked to a cyclic ester. Amphotericin B, in particular, contains a mycosamine linked to the cyclic ester through a glycosidic bond.

These lipophilic antibiotics actively bind sterols, predominantly ergosterol, a component of the fungal membrane. Binding to ergosterol results in the formation of membrane channels, or pores, and the leakage of ions. Polyenes are fungistatic, inhibiting cell growth, to all fungi with the exception of fungi deficient in ergosterol as a result of its replacement with sterol precursors.

Amphotericin B is insoluble in water at physiological pH. As a result, the bile salt deoxycholate is used as a solubilizing agent.

The normal working concentration of amphotericin B is 2.5 µg/mL, and it may be paired with Penicillin/Streptomycin as a broad-spectrum treatment. When used to treat severe contamination of fungi and yeast, the concentration can be increased up to 4 µg/mL for several subcultures.

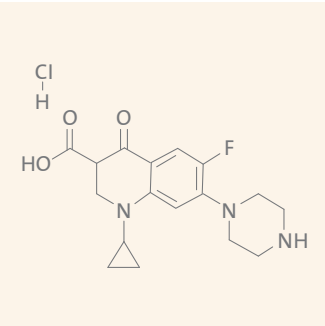
Amphotericin B is stable for up to 7 days in culture at 37°C. At a storage temperature of 2°C to 8°C, Amphotericin B is stable for up to 3 weeks. For optimum stability, keep frozen and avoid multiple freeze-thaw cycles.

Product Specifications

Mode of Action	Binds sterols, particularly ergosterol, forming pores in the fungal cytoplasmic membrane and causing leakage of cellular ions
Conferred Resistance	Ergosterol deficiency
Spectrum	Fungi
Microbiological Potency	250 µg/mL
Molecular Weight	923.49
Formula	$C_{47}H_{73}NO_{17}$
Appearance	Yellow solution
Working Concentration	2.5 µg/mL, under normal working conditions
Storage and Stability	Frozen (-25°C to -15°C) Protected from light Avoid multiple freeze-thaw cycles

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
30-003-CF	Amphotericin B, liquid 250 µg/mL solubilized	50 mL	6



Molecular structure

Ciprooxacin Hydrochloride, powder (Cat. No. 61-277-RG), 5 g

Ciprofloxacin Hydrochloride

Ciprofloxacin hydrochloride (HCl) is a fluoroquinolone antibiotic. It is effective against a wide range of Gram-positive and Gram-negative bacteria, and is well known for its effectiveness against mycoplasma. Ciprofloxacin HCl works by interfering with the bacterial enzyme DNA gyrase, an enzyme necessary for bacterial synthesis, replication, and transcription in both the active and non-active growth phases of the bacterial life cycle.

Mycoplasma contamination may originate from various sources including cell culture medium, serum added to the medium, and tissue used to establish primary cultures. Most commonly, it is passed from individuals who handle the cultures. Mycoplasma is an insidious infection that decreases cellular activity and growth rate, produces membrane alterations, affects amino acid and nucleic acid metabolism, causes chromosome aberrations, and diminishes the quality of resultant data or products. Mycoplasma infections often remain undetected and even with the heaviest contamination, and cultures may appear to grow normally and remain clear. Reports estimate that up to 35% of cultures containing mycoplasma go undetected. The most common method for detecting viable mycoplasma is the Barile and Kern large volume cell culture method. If detected, Ciprofloxacin HCl can provide the end user with an alternative to discarding valuable cell cultures, thus saving valuable time and money. Ciprofloxacin HCl shows minimal decrease in effectiveness even after six days in culture; therefore, regular feeding schedules are not interrupted. Treatment can be discontinued when no signs of reoccurrence are apparent after four consecutive weeks.

Product Specifications

Mode of Action	Interferes with DNA gyrase, an enzyme required in DNA and RNA synthesis, replication, and transcription
Conferred Resistance	None known
Spectrum	Gram (+) and Gram (-) bacteria
Microbiological Potency	2800 µg/mg
Molecular Weight	331.346
Formula	$C_{17}H_{18}FN_3O_3$
Appearance	Faintly yellowish to light yellow crystals
Working Concentration	5–25 µg/mL
Storage and Stability	Solutions: -25°C to -15°C Powder: 15°C to 30°C

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
61-277-RF	Ciprofioxacin Hydrochloride, powder	1 g	1
61-277-RG	Ciprofioxacin Hydrochloride, powder	5 g	1

Activity and Mechanism of Action of Antibiotics/Antimycotics

Class	Mode of Action	Conferred Resistance	Activity	Spectrum
Cell Wall Active Agents				
ß-lactams (penicillins) Ampicillin Penicillin Carbenicillin	Inhibitors of transpeptidation at the final stage of the reaction thereby inhibiting the formation of cross bridges	ß-Lactamases, a change in cell wall permeability, or a change in the penicillin-binding proteins	Bacteriocidal	Gram + Gram -
Inhibitors of Protein Synthesis				
Aminoglycosides: G418 Gentamicin Hygromycin B Kanamycin Neomycin Streptomycin	Binds to the 30S ribosomal subunit and affects the fidelity of translation	Aminoglycosides-modifiying enzymes, a change in cell permeability, or a change in ribosomal structure	Bacteriocidal	Gram + Gram - bacilli aerobes, and facultative anaerobes only
Aminonucleosides: Blasticidin S Puromycin	Inhibits protein synthesis at the level of peptide bond formation	Aminonucleoside-modifying	Bacteriocidal Eukaryocidal	Broad
Chloramphenicol	Binds to the 50S ribosomal subunit to inhibit amino acid transfer by peptidyltransferase	Chloramphenicol-modifying	Bacteriostatic	Gram + Gram -
Tetracyclines	Binds to the 30S ribosomal subunit thereby blocking the incoming aminocyl-tRNA from attaching to the acceptor site on the mRNA ribosome complex	A change in the cell permeability	Bacteriostatic	Gram + Gram -
Inhibitors of Nucleic Acid Synthesis and Replication				
Quinolones Ciprofloxacin	Inhibits DNA gyrase by preventing the enzyme from resealing the double stranded DNA after nicking during replication	A change in the enzyme	Bacteriocidal	Gram + Gram - Mycoplasma
Antifungal Agents				
Polyenes Amphotericin B	Binds sterols, particularly ergosterol, forming pores in the fungal cytoplasmic membrane and causing leakage of cellular components	Ergosterol deficiency	Fungistatic	Fungi

Antibiotics Quick Reference

Description	Cat. No.	Storage	Solubility	Suggested working concentration	Solution stability at 37ºC
Amphotericin B 250 µg/mL solution	30-003-CF	-25°C to -15°C	--	10 mL/L (2.5 µg/mL)	3 days
Ampicillin, Sodium Salt, powder	61-238-RH 61-238-RM	2°C to 8°C	H_2O	100 µg/mL	3 days
Antibiotic-Antimycotic solution 10,000 I.U. Penicillin 10,000 µg/mL Streptomycin 25 µg/mL Amphotericin	30-004-CI	-25°C to -15°C	--	10 mL/L (1:100 dilution)	3 days
Carbenicillin, Disodium Salt, powder	46-100-RG	2°C to 8°C	H_2O	0.1 µg/mL to 75 µg/mL	3 days
Chloramphenicol, powder	61-239-RI	15°C to 30°C	Ethanol	5 µg/mL	5 days
Ciprofloxacin Hydrochloride, powder	61-277-RF 61-277-RG	15°C to 30°C	H_2O	10 µg/mL	--
G418 Sulfate powder, Potency >700 µg/mg	61-234-RF 61-234-RG 61-234-RK	15°C to 30°C	H_2O	300 µg/mL - 1000 µg/mL	--
50 mg/mL solution	30-234-CR 30-234-CI	2°C to 8°C	--		
Gentamicin Sulfate, powder 50 mg/mL solution	61-098-RA 61-098-RF	2°C to 8°C	H_2O	50 µg/mL	5 days
	30-005-CR	5°C to 30°C	--	1 mL/L (1:1000 dilution)	
Hygromycin B 50 mg/mL solution	30-240-CR	2°C to 8°C	--	25 µg/mL to 1000 µg/mL	5 days
Kanamycin Sulfate, powder 5,000 µg/mL solution	61-176-RG	15°C to 30°C	H_2O	50 µg/mL	5 days
	30-006-CF	-25°C to -15°C	--	10 mL/L (1:100 dilution)	
Neomycin Sulfate, powder	61-241-RG 61-241-RM	15°C to 30°C	H_2O	50 µg/mL	5 days
Penicillin Streptomycin solution 5,000 I.U. Penicillin 5,000 µg/mL Streptomycin	30-001-CI	-25°C to -15°C	--	20 mL/L (1:50 dilution)	3 days
10,000 I.U. Penicillin 10,000 µg/mL Streptomycin	30-002-CI			10 mL/L (1:100 dilution)	
Penicillin-Streptomycin solution L-Glutamine 10,000 I.U. Penicillin 10,000 µg/mL Streptomycin 29.2 mg/mL L-Glutamine	30-009-CI	-25°C to -15°C	--	10 mL/L (1:100 dilution)	3 days
Puromycin Dihydrochloride, powder	61-385-RA	-25°C to -15°C	H_2O	0.1 µg/mL to 30 µg/mL	--
Streptomycin Sulfate, powder	61-088-RM	-25°C to -15°C	H_2O	100 µg/mL	3 days
Tetracycline Hydrochloride, powder	61-242-RG	-25°C to -15°C	H_2O	10 µg/mL	4 days

Ordering Information

Cat. No.	Description	Unit Size	Qty/Pk
30-003-CF	Amphotericin B, liquid 250 µg/mL solubilized	50 mL	6
61-238-RH 61-238-RM	Ampicillin, Sodium salt, powder	10 g 100 g	1 1
30-004-CI	Antibiotic-Antimycotic Solution, 10,000 I.U. Penicillin (per mL) 10,000 µg/mL Streptomycin 25 µg/mL Amphotericin with 8.5 g/L NaCl	100 mL	6
30-100-RB	Blasticidin S HCl	50 mg	1
46-100-RG	Carbenicillin Disodium salt, powder	5 g	1
61-239-RI	Chloramphenicol, powder	25 g	1
61-277-RF 61-277-RG	Ciprofloxacin Hydrochloride, powder	1 g 5 g	1 1
30-234-CR 30-234-CI	G418 Sulfate, liquid 50 mg/mL solution	10 mL 100 mL	1 1
61-234-RF 61-234-RG 61-234-RK	G418 Sulfate, powder	1 g 5 g 50 g	1 1 1
30-005-CR	Gentamicin Sulfate, liquid 50 mg/mL solution	10 mL	10
61-098-RA 61-098-RF	Gentamicin Sulfate, powder	100 mg 1 g	1 1
30-240-CR	Hygromycin B solution	10 mL	1
30-006-CF	Kanamycin Sulfate, liquid, 5,000 µg/mL solution	50 mL	6
61-176-RG	Kanamycin Sulfate, powder	5 g	1
61-241-RG	Neomycin Sulfate, powder	5 g	1
30-001-CI	Penicillin-Streptomycin Solution, 50x, 5,000 I.U. Penicillin (per mL) 5,000 µg/mL Streptomycin	100 mL	6
30-002-CI	Penicillin-Streptomycin Solution, 100x, 10,000 I.U. Penicillin 10,000 µg/mL Streptomycin	100 mL	6
30-009-CI	Penicillin-Streptomycin-L-Glutamine, 100x, 10,000 I.U. Pencillin (per mL) 10,000 µg/mL Streptomycin 29.2 mg/mL L-glutamine	100 mg	6
61-385-RA	Puromycin Dihydrochloride, powder	100 g	1
61-088-RM	Streptomycin Sulfate, powder	100 g	1
61-242-RG	Tetracycline Hydrochloride, powder	5 g	1

For more specific information on claims, visit the Certificates page at **www.corning.com/lifesciences**.

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