FT-N12272

ANTIBIOTICS

Products Description

. Popular antibiotics, used in cell culture, as preservative in buffers in biochemistry and purifcation,…

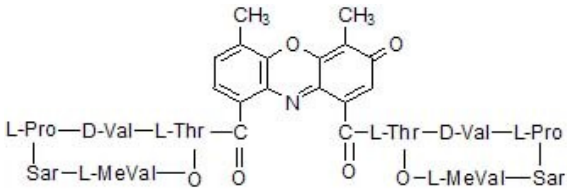
Antibiotic	CAS#	Product #
ACTINOMYCIN D	CAS [50-76-0]	09086A
AMPHOTERICIN B	CAS [1397-89-3]	550735
AMPHOTERICIN B, Solubilized		
AMPICILLIN, TriHydrate	CAS [7177-48-2]	391961
BACITRACIN ZINC	CAS [1405-89-6]	GS309
CARBENICILLIN, DiNa Salt	CAS[4800-94-6]	383880
CEFOTAXIME, Na Salt	CAS[64485-93-4]	NC7202
CHLORAMPHENICOL	CAS [56-75-7]	091421
CHLORTETRACYCLINE HCl	CAS [64-72-2]	19252A
HYGROMYCIN B	CAS [31282049]	71946A
PENICILLIN G, Na salt	CAS [69-57-8]	N12272
PUROMYCIN DiHCl	CAS [58-58-2]	090901
STREPTOMYCIN	CAS [3810-74-0]	224968
VALINOMYCIN	CAS [2001-95-8]	092464

Biotech grade powders

Antibiotics and antimycotics are used extensively in many laboratory applications, from selecting transformed bacteria to maintaining cell lines. They are also used in biochemistry to preserve buffers from bacterial / fungal contamination.

Technical and Scientific Information

Name :	**ACTINOMYCIN**
Catalog Number :	09086A
Structure :	syn: benzylpenicillin sodium salt, crystapen, novocillin, penilevel, Pen PCN CAS: [69-57-8]
Molecular Weight :	**MW= 356.38**
Properties:	Soluble in DMSO, EtOH, CH_3OH $\lambda_{exc}\backslash\lambda_{em}$ (MeOH) = 441 nm/none
Storage	+4°C (H)



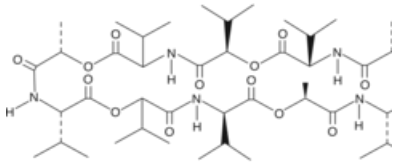
Actinomycin D is a polypeptide antibiotic isolated from soil bacteria of the genus Streptomyces. It is a nonfluorescent DNA duplexes intercalator that exhibits high GC selectivity and causes distortion at its binding site. It interfers with the action of enzymes engaged in replication and transcription (Actinomycin D is one of the old chemotherapy drugs which

have been used in therapy for many years). Binding of the nonfluorescent actinomycin D to nucleic acids changes the absorbance of the dye.

References

1; Hu, B., et al., Kasabach-Merritt syndrome-associated kaposiform hemangioendothelioma successfully treated with cyclophosphamide, vincristine, and actinimycin D J. Pediatr. Hematol. Oncol. 20, 567, (1998).
2; Cohen, S.M., et al., Identification of chromosomal bands replicating early in the S phase of normal human fibroblasts. Exp. Cell Res. 254, 321, (1998).
3; Wadkins, R.M., Actinomycin D binding to single-stranded DNA: sequence specificity and hemi-intercalation model from fluorescence and 1H NMR spectroscopy. J. Mol. Biol. 262, 53, (1996).
4; Chen, H., et al., DNA bending and unwinding associated with actinomycin D antibiotics bound to partially overlapping sites on DNA. J. Mol. Biol. 258, 457, (1996).
5; Glynn, J.M., et al.,, Apoptosis induced by Actinomycin D, Camptothecin or Aphidicolin can occur in all phases of the cell cycle. Biochem. Soc. Trans. 20, 84S, (1992).

Name :	**VALINOMYCIN**
	Syn.: 3,6,9,15,18,21,27,30,33-Nonaisopropyl-12,24,36-trimethyl-1,7,13,19,25,31-hexaoxa-4,10,16,22,28,34-hexaaza-cyclohexatriacontane-2,5,8,11,14,17,20,23,26,29,32,35-dodecaone
	NSC122033
	CAS : [2001-95-8]
Catalog Number :	**092464**.
Molecular Weight :	MW= 1 111.3
Properties	**Purity**: >95%
	Stable 2 years at –20°C
	Soluble in DMSO, EtOH, CH_3OH



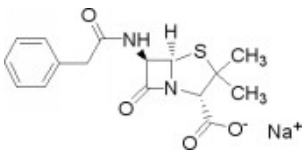
Storage: -20°C (J)
Protect from light and moisture

Valinomycin is a cyclododecadepsipeptide potassium-selective ionophore antibiotic that is isolated from various strains of Streptomyces. The hydrophilic interior is the right size to accommodate the potassium ion, but not other ions, while the hydrophobic exterior allows the complex to pass through the lipid bilayer. Valinomycin induces apoptosis in several cell types, including CHO cells, by stimulating potassium efflux. Apoptotic events produced by valinomycin include phosphatidylserine membrane translocation, caspase-3 activation, and mitochondrial membrane depolarization. Due to the ion-selective nature of valinomycin, it is used in ion-selective electrodes.

References

1- Abdalah, R., Wei, L., Francis, K., et al. Valinomycin-induced apoptosis in Chinese hamster ovary cells. Neurosci Lett 405 68-73 (2006).
2- Turchan, J., Pocernich, C.B., Gairola, C., et al. Oxidative stress in HIV demented patients and protection ex vivo with novel antioxidants. Neurology 60 307-314 (2003).

Name :	**PENICILLIN G, Sodium salt**
Catalog Number :	N12272
Structure :	syn: benzylpenicillin sodium salt, crystapen, novocillin, penilevel, Pen PCN
	CAS: [69-57-8]
Molecular Weight :	**MW= 356.38**
Properties:	pH(6% in water, 25°C): 1.5 Loss on drying: 1.5% Activity: 1500-1750U/mg
Storage	Room temperature (Z)



- **Penicillins**

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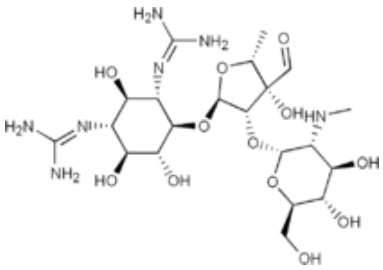
Penicillin, a group of antibiotics derived from Penicillium fungi, are β-lactam antibiotics and are used in the treatment of bacterial infections caused by susceptible, usually Gram-positive, organisms. This includes penicillin G, procaine penicillin, benzathine penicillin, and penicillin V. They are the first drugs found effective against many previously serious diseases such as syphilis and infections caused by staphylococci and streptococci. Still widely used today, many types of bacteria are now resistant. Analogs includes ampicillin, which has a broader spectrum of activity than either of the original penicillins, the carbenicillin, ticarcillin and piperacillin, useful for their activity against Gram-negative bacteria, and the β-lactamase-resistant penicillins like flucloxacillin, dicloxacillin, and methicillin.

- **Antibiotic activity**

The β-lactam moiety of penicillin G binds to the DD-transpeptidase enzyme, preventing thus the binding of peptidoglycan molecules in bacteria, weakening the cell wall of the bacterium and finally causing cytolysis. In addition, the build-up of peptidoglycan precursors triggers the activation of bacterial cell wall hydrolases and autolysins, which further digest the bacteria's existing peptidoglycan. Penicillin molecule, thanks to its small size penetrate deeply into the cell wall, in contrast to the other major class of cell wall synthesis inhibiting antibiotics. Penicillins block not only the division of bacteria, including cyanobacteria, but also the division of cyanelles, the glaucophytes, and the division of chloroplasts of bryophytes. In contrast, they have no effect on the plastids of the highly developed vascular plants.

- **Legals** **Irritant** R36/37/39 S22-36/37

Name :	**STREPTOMYCIN G Sulfate**
Catalog Number :	224968, 100 g
Structure :	CAS: [69-57-8]
Molecular Weight :	**MW= 1457.38** g.mol-1
Store	-4°C (L)



Streptomycin Sulfate Binds 30S subunit of ribosome. It uses in cell culture from Gram-Positive and Gram-Negative bacteria.

- **Guidelines for use**

Most common vectors, whether plasmid or phage DNA, carry genes encoding resistance to antibiotics and are identified by the ability of the host bacteria to grow in the presence of the antibiotic. Antibiotic solutions are usually added to freshly autoclaved media (after it has cooled to about 50°C). These antibiotic solutions can also be plated directly on the surface of an agar plate and spread evenly. Liquid media or agar plates containing antibiotics should be stored at 4°C for no longer than 30 days to maintain the drug's effectiveness. Below is a table of common antibiotics for the selection of bacteria harboring resistant plasmids. Unless otherwise stated, all antibiotic solutions should be prepared in sterile distilled water and then stored at -20°C.

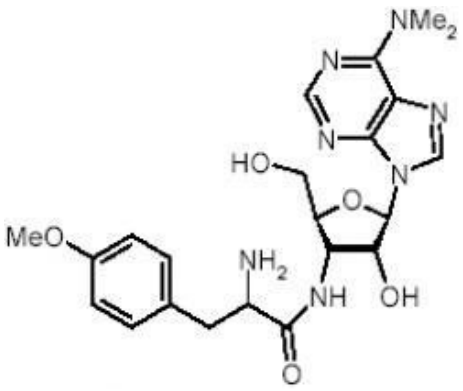
- Stock concentration: 30 mg/ml
- Working concentration: 30 µg/ml

References

- **Auzanneau C**. *et al*., A Novel Voltage-dependent Chloride Current Activated by Extracellular Acidic pH in Cultured Rat Sertoli Cells, *J. Biol. Chem*., 278: 19230 - 19236 (2003) Article
- **Bykov I**. *et al*., L-CARNITINE ALLEVIATES ALCOHOL-INDUCED LIVER DAMAGE IN RATS: ROLE OF TUMOUR NECROSIS FACTOR-ALPHA, *Alcohol and Alcoholism* Vol. 38, No. 5, pp. 400-406 (2003) Article
- **Colosetti P.** *et al*., The type 3 inositol 1,4,5-trisphosphate receptor is concentrated at the tight junction level in polarized MDCK cells, *J. Cell Sci*., 116: 2791 - 2803 (2003) Article
- **Dringen R**. *et al*., Synthesis of the Antioxidant Glutathione in Neurons: Supply by Astrocytes of CysGly as Precursor for Neuronal Glutathione, *The Journal of Neuroscience*, 19(2):562-569 (1999) Article
- **Jordan M.A**., *et al*., Slamf1, the NKT Cell Control Gene Nkt1, *J. Immunol*., 178: 1618 - 1627 (2007) Article

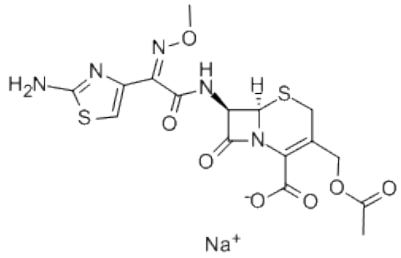
- **Nozaki M**. *et al*., Drusen complement components C3a and C5a promote choroidal neovascularization, *PNAS*, 103: 2328 - 2333 (2006) Article

Name :	**PUROMYCIN Dihydrochloride**
	[3'-α-Amino-p-methoxyhydrocinnamamido)-3'-deoxy-N,Ndimethyladenosine.2HCl]
Catalog Number :	090901, 25mg 090902, 100mg
	090903, 500mg 090904, 1g
	CAS: [58-58-2];
	Merck Index Merck Index: 13.8044.2001
Molecular Weight :	**MW=544.43**
Properties:	**Solubility:** 50mg/mL in water
	Apparence: White or off-white powder
	Purity: >99.99% (water: 8-9%)
	Melting Point : 165 - 172 °C
Storage:	–20°C (M)



Puromycin is a broad spectrum antibiotic that inhibits protein synthesis in both procaryotic and eucaryotic organisms. It is widely used as a selection agent for cells carrying the Pac resistance gene encoding puromycin N-acetyl-transferase

Name :	**CEFOTAXIME, Na Salt**
Catalog Number :	NC7202, 1 g
Structure :	CAS: [64485-93-4]
Molecular Weight :	**MW= 477,5** g.mol-1
Soluble :	Water (50mg/ml)
Store	-4°C (L)



A cephalosporin antibiotic, acts as an in bacterial cell wall synthesis. Effective against Gram-negative and Gram-positive bacteria. Resistant to β-lactamase.

Related / associated products and documents

Antibiotic	CAS#	Product #
BAFILOMYCIN A1	CAS [88899-55-2]	973092
KANAMYCIN Sulfate	CAS [25389-94-0]	308664
AMPICILLIN, Na Salt	CAS [69-52-3]	391961
NEOMYCIN Sulfate	CAS [1405-10-3]	423688
G418 SULFATE (Geneticin)	CAS [108321-42-2]	652495

PBS tablets, UP307157

See Product hightlights, BioSciences Innovations catalogue and e-search tool.

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