

Antibiotics

Products Information

Product name cat.number	CAS	Stock solution Working conc. ($\mu\text{g}\cdot\text{ml}^{-1}$) CAS #	Use / Mechanism
Ampicillin, sodium salt 391960, 5 g 391961, 25 g 391962, 100 g	[69-52-3]	Stock soln: 50 mg/ml Working conc.: 50 $\mu\text{g}/\text{ml}$	Selection of transformed bacteria (+) (-) Interferes with formation of bacterial cell wall
Bafilomycin A1 973092, 1 mg 973094, 5 mg	[88899-55-2]	Stock soln: 10 mg/ml Working conc.: 5-10 $\mu\text{g}/\text{ml}$	Selection of microorganisms, animal cells, and plant cells Inhibitor of membrane ATPase
G418, sulfate 652495, 1g 652496, 5x1g 652497, 5g G418, sulfate sterile solution 50mg/ml CNT440, 10ml CNT441, 5x10ml CNT442, 50ml CNT443, 100ml	[108321-42-2]	Stock soln: 50 mg/ml Working conc.: 10-200 mg/ml - bacteria selection: 8-16 - plant cell maintenance: 10 - plant cell selection: 25-50 - mammalian cell maintenance: 200 - mammalian cell selection: 400 (range: 300-1000) - yeast: after transformation incubate culture at 30°C for 2-3 hours and then plate on YPD containing 200 mg/L (= $\mu\text{g}/\text{ml}$) G418.	Gentamycin analog, used to select for the KanMX marker in yeast. Irreversibly binds to 80S ribosomal subunit, disrupting proofreading. Mode of resistance: <i>neo/kan</i> gene is an aminoglycoside 3'-phosphotransferase, which inactivates G418, neomycin and kanamycin by phosphorylation.
Kanamycin, sulfate 308664, 10 g 308665, 25g	[25389-94-0]	Stock soln: 15 mg/ml Working conc.: 30 $\mu\text{g}/\text{ml}$	Cell culture (+) (-) yeasts Binds to the 30S subunit of the bacterial ribosome
Neomycin, sulfate 423688, 25g 423689, 100g Neomycin, sterile solution 50mg/ml 172178, 10ml	[1405-10-3]	Stock soln: 50 mg/ml Working conc.: 10-50 $\mu\text{g}/\text{ml}$	Target organism : bacteria, mammalian cells Binds to ribosomal components and inhibits protein synthesis. Mode of resistance: <i>neo/kan</i> resistance gene is an aminoglycoside 3'-phosphotransferase, which inactivates G418, neomycin, and kanamycin by phosphorylation.
Penicillin-Streptomycin Sterile solution 409963, 100 ml		Working conc.: Pen G : 10000-12000 units/ml Strep: 10-12 mg/ml	Antibacterial sterile-filtered solution used against both Gram-negative and Gram-positive bacteria in cell cultures. Penicillin, the beta lactam, breaks peptidoglycan links in non-resistant cell walls and triggers autolysins, which kill the cell. Streptomycin, the aminoglycoside, binds to the ribosomes and inhibits protein synthesis. Contains: ; Endotoxin: not more than 0.5 EU/ml.

Introduction

Antibiotics and antimycotics are used extensively in many laboratory applications, from selecting transformed bacteria to maintaining cell lines.

When coupled with aseptic technique, researchers using these products can be confident that they are maintaining pure cultures, devoid of contamination. It is important to be aware that some antibiotics/antimycotics exhibit cell specific cytotoxicity and therefore caution must be exercised when selecting effective antibiotics and working concentrations. The table above summarizes the uses and mechanism of the action of antibiotics/antimycotics available from Uptima.

Directions for use

Handling and Storage

Unless otherwise stated, all antibiotic solutions should be prepared in sterile distilled water and then stored at -20°C.

Ampicillin I is stored at +4°C (L)

Neomycin sulfate in powder, #423688 and #423689 is stored à room temperature.

Neomycin in solution, #172178 is stored at -20°C (M, J, D).

Kanamycin and G418 sulfate powders can be stored at room temperature and +4°C as solutions.

Bafilomycin A1 can be stored at -20°C. Freely soluble in DMSO; may react with methanol or ethanol, so these solvents are not recommended for stock solutions; very poorly soluble in water; maximum solubility in plain water is estimated to be about 5-10 µM; buffers, serum, or other additives may increase or decrease the aqueous solubility

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.

Bibliographic references

Bafilomycin A1

- **Dawaliby R. et al.**, Microautophagy of the Nucleus Coincides with a Vacuolar Diffusion Barrier at Nuclear-Vacuolar Junctions, *MBoC*, Vol. 21, Issue 23, 4173-4183 (2010) [Article](#)
- **Emerman A. et al.**, Compartment-Restricted Biotinylation Reveals Novel Features of Prion Protein Metabolism in Vivo, *Mol. Biol. Cell*, 21: 4325 - 4337 (2010) [Article](#)
- **Galione A.**, NAADP Receptors, *Cold Spring Harb Perspect Biol*, Jan 2011; 3: a004036 [Abstract](#)
- **Yoshimori T. et al.**, Bafilomycin A1, a specific inhibitor of vacuolar-type H(+)-ATPase, inhibits acidification and protein degradation in lysosomes of cultured cells, *The Journal of Biological Chemistry*, 266, 17707-17712 (1991) [Article](#)

Related / associated products and documents

Antibiotic	CAS#	Product # / FT-N12272
ACTINOMYCIN D	CAS: 50-76-0	09086A FT-N12272
AMPHOTERICIN B	CAS: 1397-89-3	550735
AMPICILLIN, TriHydrate	CAS: 7177-48-2	23135
BACITRACIN ZINC	CAS: 1405-89-6	GS3090
CARBENICILLIN, DiNa Salt	CAS[4800-94-6	383880
CHLORAMPHENICOL	CAS: 56-75-7	091421
CHLORTETRACYCLINE HCl	CAS: 64-72-2	19252
D-CYCLOSERINE	CAS: 68-41-7	092008
Inhibits cell wall synthesis in gram+ and gram- bacteria. Recommended working concentration: 100-200 µg/ml in water.		
HYGROMYCIN B	CAS: 31282049	N1442
JOSAMYCINE (Leucomycin A3)	CAS: 16846-24-5	Q58055
PENICILLIN G, Na salt	CAS: 69-57-8	N1227
PUROMYCIN DiHCl	CAS: 58-58-2	090901
STREPTOMYCIN	CAS: 3810-74-0	224968
VALINOMYCIN	CAS: 2001-95-8	092464
RADICICOL a macrocyclic antifungal antibiotic	CAS: 12772-57-5	WT1140 FT-WT1140 B6

FT-308664

Ordering information

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