To order contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura,
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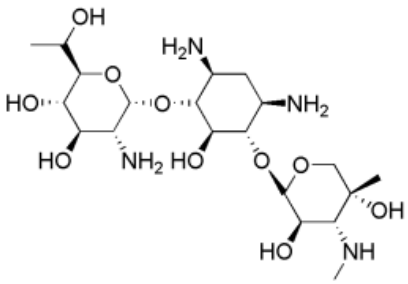
SELECTIVE ANTIBIOTICS

(G418, Hygromycin B – HygroGold, Puromycin, Zeocin, Blasticidin S, Phleomycin)

G418



G418 is an aminoglycoside antibiotic similar in structure to gentamicin B1, produced by *Micromonospora rhodorangea*. G418 **blocks polypeptide synthesis** by inhibiting the elongation step **in both prokaryotic and eukaryotic cells**.
Resistance to G418 is conferred by the **neo gene** from Tn5 encoding an aminoglycoside 3'-phosphotransferase, APH 3' II.

Selection in mammalian cells is usually achieved in three to seven days with concentrations ranging from 400 to 1000 µg/ml. Cells that are dividing are affected sooner than those that are not.

Formula: $C_{20}H_{40}N_4O_{10}. 2H_2SO_4$
Molecular weight: 692.7
CAS Number: 108321-42-2

Cloning vectors using G418

- **pSELECT-neo-mcs**, **pSELECT-neo-LacZ** : pSELECT plasmids offer all the features necessary to express a gene of interest at high levels in a large number of cell types.
- **pMONO-neo-mcs**, **pMONO-neo-gfp** : pMONO plasmids are specifically designed for strong and constitutive expression of a gene of interest in a wide variety of cell lines.
- **pVITRO1-neo-mcs**, **pVITRO1-neo-GFP/LacZ** : pVITRO allow the ubiquitous and constitutive co-expression of two genes of interest.
- **pVITRO2-neo-mcs**, **pVITRO2-neo-GFP/LacZ** : pVIVO allow strong and sustained co-expression of two genes of interest in many tissues and organs.
- **psiRNA-h7SK G1 Neo** : psiRNA-h7SK offer all the features necessary to express shRNA under the human 7SK RNA polymerase III promoter.
- **pCpGfree-vitroNmcs**, **pCpGfree-vItroNLacZ** : pCpGfree-vitro is a family of expression vectors completely devoid of CpG dinucleotides that are selectable in mammalian cells

Contents and Storage

G418 is provided as a colorless solution at 100 mg/ml.
G418 is shipped at room temperature and should be stored at -20°C. G418 is stable for at least 1 year when stored at -20°C.

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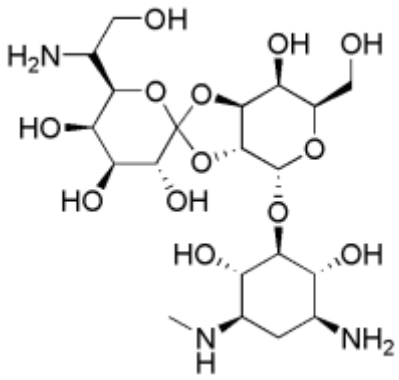
Hygromycin B - HygroGold™



Hygromycin B is an aminoglycoside antibiotic produced by *Streptomyces hygroscopicus*. **It inhibits protein synthesis** by interfering with translocation and causing mistranslation at the 70S ribosome. Hygromycin B is effective **on most bacteria, fungi and higher eukaryotes**.
Resistance to hygromycin is conferred by the **hph gene** from *E. coli*.

Hygromycin B is normally used at a concentration of 50-200 µg/ml in mammalian cells and 100 µg/ml in bacteria.

Two grades of Hygromycin B are available:
Hygromycin B (purity >85%)
HygroGold™ (purity >98%)

Formula: $C_{20}H_{37}N_3O_{13}$, HCl
Molecular weight: 527.52
CAS Number : 31282-04-9

Bulk quantities available at highly discounted prices : Contact ***customerservice@atzlabs.com***

Cloning vectors using Hygromycin B

Invivogen offers several selection vectors using Hygromycin as selection antibiotic:

- **pSELECT-hygro-mcs**, **pSELECT-hygro-LacZ** : pSELECT plasmids offer all the features necessary to express a gene of interest at high levels in a large number of cell types.
- **pMONO-hygro-mcs**, **pMONO-hygro-gfp** : pMONO plasmids are specifically designed for strong and constitutive expression of a gene of interest in a wide variety of cell lines.
- **pVITRO1-hygro-mcs**, **pVITRO1-hygro-GFP/LacZ** : pVITRO allow the ubiquitous and constitutive co-expression of two genes of interest.
- **pVITRO2-hygro-mcs**, **pVITRO2-hygro-GFP/LacZ** : pVIVO allow strong and sustained co-expression of two genes of interest in many tissues and organs.
- **psiRNA-h7SK G1 Hygro** : psiRNA-h7SK offer all the features necessary to express shRNA under the human 7SK RNA polymerase III promoter.
- **pCpGfree-vitroHmcs**, **pCpGfree-vitroHLacZ** : pCpGfree-vitro is a family of expression vectors completely devoid of CpG dinucleotides that are selectable in mammalian cells

Contents and Storage

Hygromycin B and HygroGold™ are provided as 100 mg/ml yellow solutions. HygroGold™ is also provided as a powder. Products are shipped at room temperature. Store at -20°C. Hygromycin B solutions are stable for at least one year when stored at -20°C.

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Puromycin

Puromycin is an aminonucleoside antibiotic produced by *Streptomyces alboniger*. It specifically i**nhibits peptidyl transfer** on both prokaryotic and eukaryotic ribosomes. This antibiotic inhibits the growth of **Gram positive bacteria** and **various animal and insect cells**. Puromycin can also be used in some particular conditions for the selection of ***E. coli* transformants.**
Resistance to puromycin is conferred by the **Pac gene** encoding a puromycin N-acetyl-transferase (PAC) that was found in a *Streptomyces* producer strain.

Animal cells are generally sensitive to concentrations from 1 to 10 µg/ml.

Formula: $C_{22}H_{29}N_7O_5$, 2HCl
Molecular weight: 471.51
CAS Number: 58-58-2

Bulk quantities available at highly discounted prices : Contact ***customerservice@atzlabs.com***

Cloning vectors using Puromycin

Invivogen offers selection vectors using Puromycin as selection antibiotic:

- **pSELECT-puro-mcs**, **pSELECT-puro-LacZ** : pSELECT plasmids offer all the features necessary to express a gene of interest at high levels in a large number of cell types

Contents and Storage

Puromycin hydrochloride is provided as a colorless solution at 10 mg/ml.
Puromycin is shipped at room temperature and should be stored at -20°C. Puromycin is stable for one year when stored at -20°C.

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Zeocin™

InvivoGen is the sole worldwide producer of Zeocin™, a copper-chelated glycopeptide antibiotic produced by *Streptomyces CL990*.

Zeocin™ causes cell death by intercalating into DNA and cleaving it. This antibiotic **is effective on most aerobic cells** and is therefore useful for selection in **bacteria, eukaryotic microorganisms, plant and animal cells.** Resistance to Zeocin™ is conferred by the **Sh ble** gene product which inactivates Zeocin™ by binding to the antibiotic.

Zeocin™ is used at a concentration of 50-300 µg/ml for selection in mammalian cells and 25 µg/ml for bacterial selection.

Empirical formula: $C_{55}H_{85}O_{21}N_{20}S_2Cu$ - HCl
Molecular weight: 1525

Bulk quantities available at highly discounted prices : Contact customerservice@atzlabs.com

Cloning vectors using Zeocin™

Invivogen offers several selection vectors using Zeocin™ as selection antibiotic:

- **pSELECT-zeo-mcs**, **pSELECT-gfpzeo-mcs**, **pSELECT-zeo-LacZ**, **pSELECT-gfpzeo-LacZ** : pSELECT plasmids offer all the features necessary to express a gene of interest at high levels in a large number of cell types.
- **pMONO-zeo-mcs**, **pMONO-zeo-gfp** : pMONO plasmids are specifically designed for strong and constitutive expression of a gene of interest in a wide variety of cell lines.
- **psiRNA-h7SK G1 Zeo**, **psiRNA-h7SK G1 GFPzeo**, **psiRNA-DUO** : psiRNA-h7SK offer all the features necessary to express shRNA under the human 7SK RNA polymerase III promoter.
- **pCpG-free**: pCpGfree is an expression vectors completely devoid of CpG dinucleotides that is selectable in mammalian cells

Contents and Storage

Zeocin™ is provided as a blue solution at 100 mg/ml.

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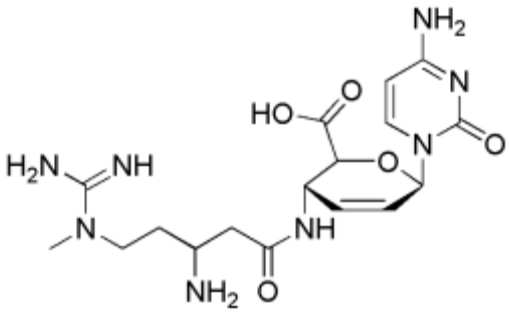
Blasticidin S



Blasticidin S is a peptidyl nucleoside antibiotic isolated from *Streptomyces griseochromogenes*. It specifically **inhibits protein synthesis in both prokaryotes and eukaryotes** by interfering with the peptide bound formation in the ribosomal machinery.
Resistance to blasticidin is conferred by the blasticidin resistance gene from *Bacillus cereus* (**bsr**) which codes for blasticidin deaminase.

Typically, bacteria are sensitive to blasticidin concentrations of 25-100 µg/ml, and mammalian cells to 1-10 µg/ml.

Formula: $C_{17}H_{26}N_8O_5$, 1 HCl
Molecular weight: 458.5
CAS Number: 2079-00-7

Bulk quantities available at highly discounted prices : Contact customerservice@atzlabs.com

Cloning vectors using Blasticidin S

Invivogen offers several selection vectors using Blasticidin S as selection antibiotic:

- **pSELECT-blasti-mcs**, **pSELECT-blasti-LacZ** : pSELECT plasmids offer all the features necessary to express a gene of interest at high levels in a large number of cell types.
- **pMONO-blasti-mcs**, **pMONO-blasti-gfp** : pMONO plasmids are specifically designed for strong and constitutive expression of a gene of interest in a wide variety of cell lines.
- **pVITRO1-blasti-mcs**, **pVITRO1-blasti-GFP/LacZ** : pVITRO allow the ubiquitous and constitutive co-expression of two genes of interest.
- **pVITRO2-blasti-mcs**, **pVITRO2-blasti-GFP/LacZ** : pVIVO allow strong and sustained co-expression of two genes of interest in many tissues and organs.
- **psiRNA-h7SK G1 Blasti** : psiRNA-h7SK offer all the features necessary to express shRNA under the human 7SK RNA polymerase III promoter.
- **pCpGfree-vitroBLacZ** : pCpGfree-vitro is a family of expression vectors completely devoid of CpG dinucleotides that are selectable in mammalian cells

Contents

Blasticidin is provided as a colorless solution at 10 mg/ml. Blasticidin is shipped at room temperature and should be stored at -20°C. Blasticidin is stable up to 1 year when stored at -20°C.

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Phleomycin

Phleomycin is a glycopeptide antibiotic of the bleomycin family, isolated from a mutant strain of *Streptomyces verticillus*. It binds and intercalates DNA thus destroying the integrity of the double helix. Phleomycin **is active against most bacteria, filamentous fungi, yeast, plant and animal cells.**
Use of phleomycin is recommended for cells poorly sensitive to Zeocin™, i.e. filamentous fungi and some yeasts. Phleomycin resistance is conferred by the **Sh ble** gene from *Streptoalloteichus hindustanus* which encodes a protein that binds to phleomycin, inhibiting its DNA cleavage activity.

Typically, phleomycin is used at a concentration of 10 µg/ml for yeasts and 25-150 µg/ml for filamentous fungi.

Empirical formula: $C_{55}H_{85}O_{21}N_{20}S_2Cu$-HCL
Molecular weight: 1525
CAS Number: 11006-33-0

Bulk quantities available at highly discounted prices : Contact customerservice@atzlabs.com

Contents and Storage

Phleomycin is provided as a blue solution at 20 mg/ml or as a powder.
Phleomycin is shipped at room temperature. Store the solution at -20°C and the powder at 4°C. Phleomycin is stable for at least 1 year when properly stored.