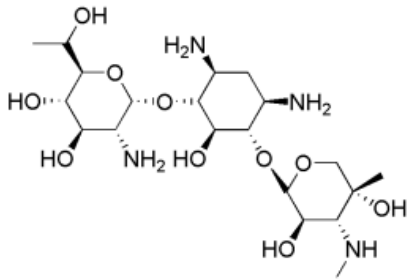




SELECTIVE ANTIBIOTICS

(G418, Hygromycin B – HygroGold, Puromycin, Zeocin, Blastidicin 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: C₂₀H₄₀N₄O₁₀ · 2H₂SO₄

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](#) : pVITRO 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

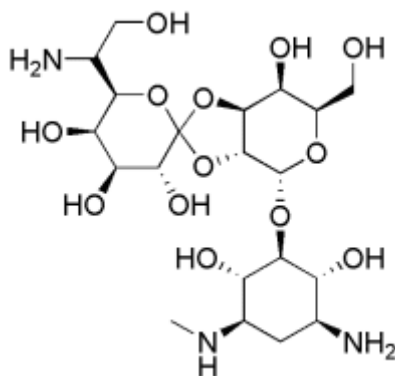
Contents and Storage

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.



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: C₂₀H₃₇N₃O₁₃, HCl

Molecular weight: 527.52

CAS Number : 31282-04-9

Bulk quantities available at highly discounted prices : Contact customerservice@lifetechindia.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](#) : pVITRO 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 **inhibits 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: C₂₂H₂₉N₇O₅, 2HCl

Molecular weight: 471.51

CAS Number: 58-58-2

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

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: C₅₅H₈₅O₂₁N₂₀S₂Cu - HCl

Molecular weight: 1525

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

Cloning vectors using Zeocin™

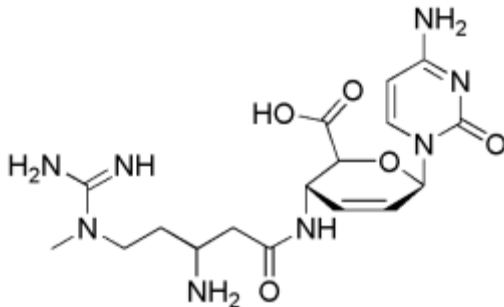
Invivogen offers several selection vectors using Zeocin™ as selection antibiotic:

- [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.

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 bond 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: C₁₇H₂₆N₈O₅, 1 HCl

Molecular weight: 458.5

CAS Number: 2079-00-7

Bulk quantities available at highly discounted prices : Contact customerservice@lifetechindia.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](#) : pVITRO 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: C₅₅H₈₅O₂₁N₂₀S₂Cu-HCL

Molecular weight: 1525

CAS Number: 11006-33-0

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