PRODUCT INFORMATION

Hygromycin B-d_4

Item No. 34443

Formal Name: (3R,3a'S,4S,4'S,5R,6R,6'R,7'S,7a'S)-4'-(((1R,2S,3R,5S,6R)-3-amino-2,6-dihydroxy-5-(methylamino)cyclohexyl)oxy)-6-((S)-1-amino-2-hydroxyethyl)-6'-(hydroxymethyl)octahydro-4'H-spiro[pyran-2,2'-[1,3]dioxolo[4,5-c]pyran]-3,4,5,7'-tetraol

MF: $C_{20}H_{33}D_4N_3O_{13}$

FW: 531.5

Chemical Purity: ≥95% (Hygromycin B)

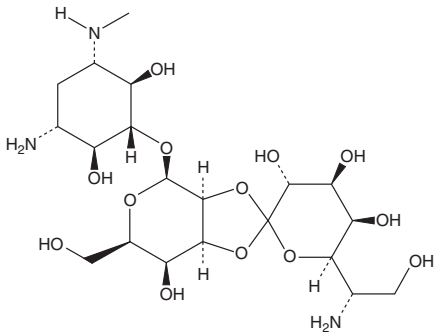
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤1% d_0

Supplied as: A solid

Storage: -20°C

Stability: ≥4 years

Item Origin: Synthetic



NOTE: Deuterium location unspecified

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Hygromycin B-d_4 is intended for use as an internal standard for the quantification of hygromycin B (Item No. 14291) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Hygromycin B-d_4 is supplied as a solid. A stock solution may be made by dissolving the hygromycin B-d_4 in the solvent of choice, which should be purged with an inert gas. Hygromycin B-d_4 is slightly soluble in methanol and water (sonicated).

Description

Hygromycin B is an aminoglycoside antibiotic that has been found in *S. hygroscopicus*.[1,2] It is active against *E. coli* (MIC = 150 µg/ml) and cytotoxic to both prokaryotic and eukaryotic cells *via* inhibition of protein synthesis.[3-5] Hygromycin B has commonly been used in molecular and cell biology applications to select for transformed cells expressing the *E. coli* hygromycin resistance genes *hyg* or *hph*.[4,5]

References

1. Eustice, D.C. and Wilhelm, J.M. Mechanisms of action of aminoglycoside antibiotics in eucaryotic protein synthesis. *Antimicrob. Agents Chemother.* **26(1)**, 53-60 (1984).
2. Cabañas, M.J., Vázquez, D., and Modolell, J. Dual interference of hygromycin B with ribosomal translocation and with aminoacyl-tRNA recognition. *Eur. J. Biochem.* **87(1)**, 21-27 (1978).
3. McGaha, S.M. and Champney, W.S. Hygromycin B inhibition of protein synthesis and ribosome biogenesis in *Escherichia coli*. *Antimicrob. Agents Chemother.* **51(2)**, 591-596 (2006).
4. Kaster, K.R., Burgett, S.G., Rao, R.N., *et al.* Analysis of a bacterial hygromycin B resistance gene by transcriptional and translational fusions and by DNA sequencing. *Nucleic Acids Res.* **11(19)**, 6895-6911 (1983).
5. Blochlinger, K. and Diggelmann, H. Hygromycin B phosphotransferase as a selectable marker for DNA transfer experiments with higher eucaryotic cells. *Mol. Cell Biol.* **4(12)**, 2929-2931 (1984).

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