


Specification



Hygromycin B - Solution

A2175

Density (d 20°C/4°C)	1.15
Formula	C ₂₀ H ₃₇ N ₃ O ₁₃
M	527.53 g/mol
CAS-No.:	31282-04-9
HS-No.:	38220000
EC-No.:	250-545-5
Storage:	-20°C
LGK:	6.1 D
R:	25-36/38
S:	26-37-45
	toxic, irritant
Class / PG:	6.1/III
UN-No.	UN2810
WGK:	3*
Specification	
Activity	approx. 46 KU/ml
Composition:	
Hygromycin B (A5347)	approx. 41.2 mg/ml
Literature	
<p>(1) Gritz, L. & Davies, J. (1983) <i>Gene</i> 25, 179-188 Plasmid-coded Hygromycin B-resistance: The sequence of the Hygromycin B-Phosphotransferase gene.</p> <p>(2) Carrasco, L. & Vázquez, D. (1993) Viral Translation Inhibitors in Antibiotics VI Pages 279 (ed. F.E. Hahn) Springer-Verlag Berlin Heidelberg New York Tokyo.</p> <p>(3) Moazed, D. & Noller, H.F. (1987) <i>Nature</i> 327, 389-394 Interaction of antibiotics with functional sites in the 16S rRNA.</p>	



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Comment

Hygromycin B belongs to the aminoglycoside antibiotics. It inhibits the bacterial translation by interacting with the 16S-rRNA. In eukaryotes the antibiotic inhibits the splicing of the group I-introns by binding to a specific RNA motive. This leads to reading errors and an inhibition of the translocation, probably by release of the peptidyl-tRNA from the acceptor site (3). The viral replication will be inhibited by antibiotics of these group too.

In molecular biology, hygromycin B is used for the selection of hygromycin-resistant cells after transformation with a plasmid, that codes for the *E. coli* hygromycin-phosphotransferase (hph). A number of vectors has been developed, to enable the application in different organism (**fungi**: Egelhoff, T.T. *et al.* (1989) *Mol. Cell. Biol.* **9**, 1965-1968; Hamada, W. *et al.* (1994) *Curr. Genet.* **26**, 251-255; **mammalian cells**: Belt, P.B.G.M. *et al.* (1989) *Gene* **84**, 407-417; Gäken, J. *et al.* (1992) *BioTechniques* **13**, 32-34; Norman, J.A. *et al.* (1992) *Mol. Pharmacol.* **41**, 53-59; Hubbard, S.C. *et al.* (1994) *J. Biol. Chem.* **269**, 3717-3724; **plants**: Dale, E.C. & Ow, D.W. (1991) *Proc. Natl. Acad. Sci. USA* **88**, 10558-10562; Ma, H. *et al.* (1992) *Gene* **117**, 161-167). Depending on the organism and cell type, the active concentration ranges from 20 µg/ml to 150 µg/ml. Usually, the higher concentration is applied (for HeLa-cells up to 300 µg/ml). It is recommended to test for the optimal concentration.

The quantity of hygromycin applied can be reduced by increasing the pH of the medium. At higher pH values, cells are more sensitive. Lower salt concentrations will help to save hygromycin too (LB medium / LB agar with 5 instead of 10 g NaCl per litre).

Stability: Hygromycin B-solutions (e. g. in HEPES buffer) are stable at +4°C for at least one year. Informations for the stability at 37°C are ranging from one month to the recommendation to change the medium every third day. In agar plates the stability is approx. 4 weeks. The shipment will be at room temperature. The substance is sensitive to high concentrations of acids. Diluted acids may be tolerated for a short time.

Caution: Hygromycin B is very toxic and probably a carcinogen. Do not breathe dust and avoid contact with skin. Wear suitable protective clothing, gloves and eye protection.