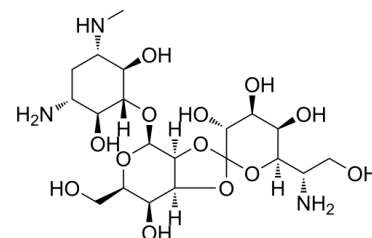


## Data Sheet

<b>Product Name:</b>	Hygromycin B
<b>Cat. No.:</b>	CS-2609
<b>CAS No.:</b>	31282-04-9
<b>Molecular Formula:</b>	C <sub>20</sub> H <sub>37</sub> N <sub>3</sub> O <sub>13</sub>
<b>Molecular Weight:</b>	527.52
<b>Target:</b>	Antibiotic; Bacterial; Fungal; Parasite
<b>Pathway:</b>	Anti-infection
<b>Solubility:</b>	H <sub>2</sub> O : 50 mg/mL (ultrasonic);DMSO : 100 mg/mL (ultrasonic;warming;heat to 60°C)



**BIOLOGICAL ACTIVITY:**

Hygromycin B is an aminoglycoside antibiotic active against prokaryotic and eukaryotic cells. IC50 & Target: Target: Antibacterial; Antifungal<sup>[1]</sup> *In Vitro*: Hygromycin B, an aminocyclitol antibiotic that strongly inhibits both 70S and 80S ribosomes, is synthesized by *Streptomyces hygroscopicus*<sup>[1]</sup>. Hygromycin B at 0.38 mM concentration completely halts yeast cell growth in rich media, presumably by preventing protein synthesis by cytoplasmic ribosomes. Polypeptide synthesis in cell-free extracts from rabbit reticulocytes, wheat germ and yeast is strongly blocked by low concentrations of hygromycin B. The antibiotic inhibits peptide chain elongation by yeast polysomes by preventing elongation factor EF-2-dependent translocation. The inhibition of translocation by hygromycin B might result from the stabilization of peptidyl-tRNA bound to the ribosomal acceptor site<sup>[2]</sup>. *In Vivo*: Hygromycin B inhibits protein synthesis by blocking ribosomal translocation without causing significant misreading *in vivo*<sup>[3]</sup>. Constitutive expression of the bacterial *hyg<sup>R</sup>* gene in transgenic mice *in vivo* confers resistance to hygromycin B<sup>[4]</sup>.

### PROTOCOL (Extracted from published papers and Only for reference)

**Animal Administration:** [4]Hygromycin B is dissolved in sterile water. The mice C57BL/6J-TgN(pPWL512hyg)1Ems carrying hyg<sup>R</sup> are treated with a single dose of hygromycin B i.p. at doses that starts at 2.7 mg/kg and increases by 50% for each consecutive dose. Control wild-type C57BL/6J mice are treated with the same volume of sterile saline. Total volume injected is 0.5 mL. The health status and body weights of animals are monitored daily for 10 consecutive days[4].

### References:

- [1]. Pardo JM, et al. Biochemical basis of resistance to hygromycin B in *Streptomyces hygroscopicus*--the producing organism. J Gen Microbiol. 1985 Jun;131(6):1289-98.
- [2]. González A, et al. Studies on the mode of action of hygromycin B, an inhibitor of translocation in eukaryotes. Biochim Biophys Acta. 1978 Dec 21;521(2):459-69.
- [3]. Pfister P, et al. Role of 16S rRNA Helix 44 in Ribosomal Resistance to Hygromycin B. Antimicrob Agents Chemother. 2003 May;47(5):1496-502.

## CAIndexNames:

D-Streptamine, O-6-amino-6-deoxy-L-glycero-D-galacto-heptopyranosylidene-(1→2-3)-O-β-D-talopyranosyl-(1→5)-2-deoxy-N3-methyl-

**SMILES:**

O[C@@H]([C@H]1O)C2(O[C@@]([C@@H](N)CO)([H])[C@@H]1O)O[C@@]([C@@H](O[C@@H]3CO)O[C@@]([C@H]([C@H](N)C4O)([H])[C@@H]([C@H]4NC)O)([H])[C@@]([C@H]3O)([H])O2

**Caution: Product has not been fully validated for medical applications. For research use only.**

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