

Product Data Sheet

Product Name: Neomycin sulfate

Cat. No.: GC13352

Chemical Properties

Cas. No. 1405-10-3

Chemical Name (2R,3R,4R,5R,6R)-5-amino-2-(aminomethyl)-6-[(1R,2S,3S,4R,6S)-4,6-diamino-2-[(2S,3R,4R,5R)-4-[(3R,4R,5R,6S)-3-amino-6-(aminomethyl)-4,5-dihydroxyoxan-2-yl]oxy-3-hydroxy-5-(hydroxymethyl)oxolan-2-yl]oxy-3-hydroxycyclohexyl]oxyoxane-3,4-diol;sulfuric acid

SMILES C1C(C(C(C(C1N)OC2C(C(C(C(O2)CN)O)O)N)OC3C(C(C(O3)CO)OC4C(C(C(C(O4)CN)O)O)N)O)O)N.OS(=O)(=O)O

Formula $C_{23}H_{52}N_6O_{25}S_3$

M.Wt 908.88

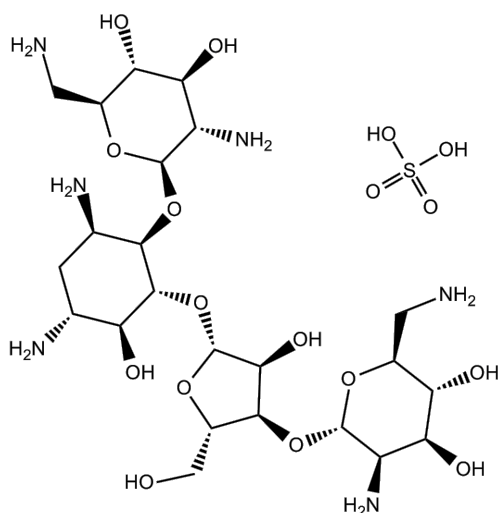
Solubility $\geq 33.75\text{mg/mL}$ in Water

Storage Store at 2-8°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Neomycin sulfate is an aminoglycoside antibiotic used for preventing or treating bacterial infections.

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

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Neomycin inhibits thrombin-stimulated release of inositol 1,4,5-trisphosphate (IP₃), by selectively binding PIP₂, but does not inhibit ³²P incorporation into PI or initiation of DNA synthesis[1].

Neomycin (10 μM-1 mM) induces considerable release of [³H]arachidonic acid from phosphatidylinositol, phosphatidylcholine and phosphatidylethanolamine in saponin-permeabilized human platelets prelabeled with [³H]arachidonic acid. Moreover, neomycin enhances arachidonic acid release induced by thrombin. Addition of neomycin (100 μM) to ⁴⁵Ca²⁺-preloaded platelets elicits ⁴⁵Ca²⁺ mobilization from intracellular stores[2]. Neomycin (0-10 mM) inhibits guanosine 5'-[gamma-thio]triphosphate-stimulated PLD activity in digitonin-permeabilized NG108-15 cells in a concentration-dependent manner (50% inhibition at 100 μM). Neomycin similarly inhibits PLD activity present in rat brain membranes and assayed in vitro with [³H]phosphatidylcholine as substrate (50% inhibition at 65 μM)[3]. Neomycin (5 mM) causes reversible reductions in the level of intracellular Ca²⁺, but PtdIns(4,5)P₂ is not required for the channel activity[4].

References:

- [1]. Carney, D.H., et al. Phosphoinositides in mitogenesis: neomycin inhibits thrombin-stimulated phosphoinositide turnover and initiation of cell proliferation. *Cell*, 1985. 42(2): p. 479-88.
- [2]. Nakashima, S., et al. Neomycin is a potent agent for arachidonic acid release in human platelets. *Biochem Biophys Res Commun*, 1987. 146(2): p. 820-6.
- [3]. Liscovitch, M., et al., Inhibition of neural phospholipase D activity by aminoglycoside antibiotics. *Biochem J*, 1991. 279 (Pt 1): p. 319-21.
- [4]. Huang K, et al. CRAC channel is inhibited by neomycin in a PtdIns(4,5)P₂-independent manner. *Cell Biochem Funct*. 2015 Mar;33(2):97-100.

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