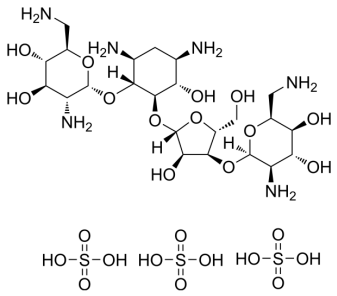
Framycetin sulfate

Cat. No.:	HY-17624A
CAS No.:	4146-30-9
Molecular Formula:	$C_{23}H_{52}N_6O_{25}S_3$
Molecular Weight:	908.88
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 250 mg/mL (275.06 mM; Need ultrasonic)
DMSO : < 1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble or slightly soluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.1003 mL	5.5013 mL	11.0026 mL
5 mM	0.2201 mL	1.1003 mL	2.2005 mL
10 mM	0.1100 mL	0.5501 mL	1.1003 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
Solubility: 50 mg/mL (55.01 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Framycetin sulfate (Neomycin B sulfate), an aminoglycoside antibiotic, is a potent RNase P cleavage activity inhibitor with a K_i of 35 μM. Framycetin sulfate competes for specific divalent metal ion binding sites in RNase P RNA. Framycetin sulfate inhibits hammerhead ribozyme with a K_i of 13.5 μM. Framycetin sulfate, a 5″-azido neomycin B precursor, binds the Drosha site in miR-525 and is used for hepatic encephalopathy and enteropathogenic E. coli infections[1][2].

IC_{50} & Target

Aminoglycoside

In Vitro

The inhibition of RNase P RNA cleavage by Framycetin sulfate (Neomycin Bsulfate; Fradiomycin Bsulfate) is sensitive to pH and an increase in pH suppresses the inhibition in other systems[1].
?Framycetin sulfate targets the bacterial and human ribosome and affect translation. 5″-azido neomycin B and Framycetin sulfate selectively inhibit production of the mature miRNA, boosts a downstream protein, and inhibits invasion in HCC cell line[2].
?Framycetin sulfate binds to a structural rather than a sequence motif of the RNA. Its primary cognate target is the decoding

site of the 16S rRNA, but it also binds to the Rev-responsive element in HIV-1, group I introns, and the hammerhead ribozyme, and thus inhibits their biological function[3].

?Framycetin sulfate induces misreading of the genetic code during translation and inhibits several ribozymes. The ribosomal target site is the 16 S rRNA 1400 to 1500 region[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. N E Mikkelsen, et al. Inhibition of RNase P RNA Cleavage by Aminoglycosides. Proc Natl Acad Sci U S A. 1999 May 25;96(11):6155-60.

[2]. Childs-Disney JL, et al. Small Molecule Targeting of a MicroRNA Associated with Hepatocellular Carcinoma. ACS Chem Biol. 2016 Feb 19;11(2):375-80.

[3]. Stampfl S, et al. Monovalent ion dependence of neomycin B binding to an RNA aptamer characterized by spectroscopic methods. Chembiochem. 2007 Jul 9;8(10):1137-45.

[4]. Hoch I, et al. Antibiotic inhibition of RNA catalysis: neomycin B binds to the catalytic core of the td group I intron displacing essential metal ions. J Mol Biol. 1998 Sep 25;282(3):557-69.

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