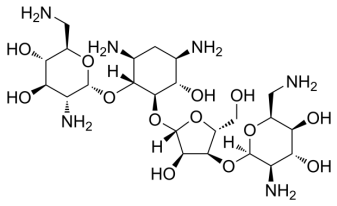
Framycetin

Cat. No.:	HY-17624
CAS No.:	119-04-0
Molecular Formula:	$C_{23}H_{46}N_6O_{13}$
Molecular Weight:	614.64
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	Solution, -20°C, 2 years



SOLVENT & SOLUBILITY

In Vitro	H_2O : 100 mg/mL (162.70 mM; Need ultrasonic) DMSO : 50 mg/mL (81.35 mM; Need ultrasonic)
In Vivo	1. Add each solvent one by one: PBS Solubility: 120 mg/mL (195.24 mM); Clear solution; Need ultrasonic 2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (4.07 mM); Clear solution 3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (4.07 mM); Clear solution 4. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (4.07 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Framycetin (Neomycin B), an aminoglycoside antibiotic, is a potent RNase P cleavage activity inhibitor with a K_i of 35 μM. Framycetin competes for specific divalent metal ion binding sites in RNase P RNA. Framycetin inhibits hammerhead ribozyme with a K_i of 13.5 μM. Framycetin, 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 (Neomycin B; Fradiomycin B) is sensitive to pH and an increase in pH suppresses the inhibition in other systems[1]. Framycetin targets the bacterial and human ribosome and affect translation. 5″-azido neomycin B and Framycetin selectively inhibit production of the mature miRNA, boosts a downstream protein, and inhibits invasion in HCC cell line[2]. Framycetin 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 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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