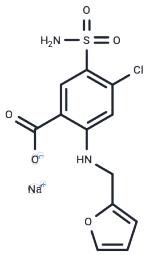
Data Sheet (Cat.No.T35336)

TargetMol

Furosemide sodium

Chemical Properties



CAS No. : 41733-55-5

Formula: C12H10ClN2NaO5S

Molecular Weight: 352.73

Storage: Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Furosemide sodium (Frusemide Sodium) is a potent and orally active inhibitor of Na+/K+/2Cl- (NKCC) cotransporter, NKCC1 and NKCC2. Furosemide sodium is also a GABAA receptors antagonist and displays 100-fold selectivity for α6-containing receptors than α1-containing receptors. Furosemide sodium acts as a loop diuretic and used for the study of congestive heart failure, hypertension and edema.
Targets(IC50)	GABA Receptor,Na-K-Cl cotransporter
In vitro	Furosemide sodium, at a concentration of 500 μM administered over 72-96 hours, significantly alters the proliferation rates of MKN45 cells, a poorly differentiated human gastric adenocarcinoma cell line, while exhibiting no impact on MKN28 cells, a moderately differentiated counterpart, with MKN45 cells displaying a higher growth rate [4]. Additionally, exposures to Furosemide sodium at concentrations of 10 μM, 30 μM, and 100 μM for 45 minutes substantially reduce cation channel activity and intracellular Ca(2+) levels in human erythrocytes from healthy individuals. Conversely, Tert-butylhydroperoxide increases non-selective cation channel activity and intracellular Ca (2+) concentrations, promoting cell membrane scrambling, which is notably mitigated by Furosemide sodium [5].
In vivo	Furosemide sodium (intraperitoneal injection; 100 mg/kg; single dose) is administered following kanamycin (KM) (1000 mg/kg) to establish a deaf mouse model in C57BL/6 mice. This regimen leads to the evaluation of hearing loss and cochlear hair cell damage on days 1, 2, and 3 post-injection. Marked deterioration in hearing is observed as early as the next day (Day-1 group), with the morphology of outer hair cells (OHCs) within the apical, middle, and basal turns of the cochlea becoming disorganized by day 3[1].

Solubility Information

Solubility	DMSO: 250 mg/mL (708.76 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (11.34 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one.*

In vivo Formulation	*Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.835 mL	14.1751 mL	28.3503 mL
5 mM	0.567 mL	2.835 mL	5.6701 mL
10 mM	0.2835 mL	1.4175 mL	2.835 mL
50 mM	0.0567 mL	0.2835 mL	0.567 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

C M Gillen, et al. Molecular cloning and functional expression of the K-Cl cotransporter from rabbit, rat, and human. A new member of the cation-chloride cotransporter family. J Biol Chem. 1996 Jul 5;271(27):16237-44.
S A Thompson, et al. Residues in transmembrane domains I and II determine gamma-aminobutyric acid type AA receptor subtype-selective antagonism by Furosemide sodium. Mol Pharmacol. 1999 Jun;55(6):993-9.
Shin Hye Kim, et al. Novel Peptide Vaccine GV1001 Rescues Hearing in Kanamycin/Furosemide sodium-Treated Mice. Front Cell Neurosci. 2018 Jan 19;12:3.
Atsushi Shiozaki , et al. Furosemide sodium, a blocker of Na+/K+/2Cl- cotransporter, diminishes proliferation of poorly differentiated human gastric cancer cells by affecting G0/G1 state. J Physiol Sci. 2006 Dec;56(6):401-6.
Yuliya V Kucherenko, et al.Inhibitory effect of Furosemide sodium on non-selective voltage-independent cation channels in human erythrocytes.Cell Physiol Biochem. 2012;30(4):863-75.