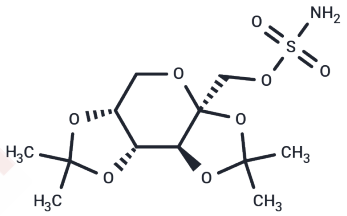
Data Sheet (Cat.No.T0675)

TargetMol

Topiramate

Chemical Properties



CAS No. : 97240-79-4

Formula: C12H21NO8S

Molecular Weight: 339.36

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Topiramate (RWJ 17021) is a unique antiseizure medication that is used in the treatment of partial and generalized seizures. Topiramate has been rarely associated with hepatic injury and largely when used in combination with other anticonvulsant medications.
Targets(IC50)	Calcium Channel,GABA Receptor,GluR,Carbonic Anhydrase,iGluR,Potassium Channel, Sodium Channel
In vitro	Intraperitoneal injection of 20 and 40 mg/kg topiramate demonstrated a dose-dependent inhibition of both tonic convulsions and absence seizures. Intraperitoneal administration of topiramate at doses ranging from 25-100 mg/kg dose-dependently increased the threshold for pentylenetetrazol (PTZ)-induced clonic seizures. Topiramate was dose-effectively potent in suppressing acute seizures induced by perinatal hypoxia, with an ED50 of 2.1 mg/kg. Additionally, in DBA/2 mice, topiramate inhibited audiogenic seizures, confirming its anticonvulsant efficacy.
In vivo	In whole-cell voltage-clamp recordings from principal neurons of the basolateral nucleus of the rat amygdala, low concentrations of Topiramate selectively inhibit excitatory postsynaptic currents (EPSCs) mediated by pharmacologically isolated kainate receptors that contain the GluR5 subunit. Topiramate also noticeably reduces AMPA receptor-mediated EPSCs, albeit with less potency. Additionally, Topiramate slightly inhibits the sustained component of Na+ currents in isolated neurons, and after blocking Ca2+ and K+ currents, diminishes the peak of Na+-dependent persistent action potentials induced in layer V pyramidal neurons. The compound selectively inhibits synaptic responses mediated by the GluR5 kainate receptor. Moreover, Topiramate impedes the action of voltage-sensitive Na+ channels and non-N-methyl-D-aspartate receptors, while potentiating inhibition mediated by gamma-aminobutyric acid (GABA).

Solubility Information

Solubility	DMSO: 55 mg/mL (162.07 mM),Sonication is recommended. Ethanol: 33.9 mg/mL (99.89 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.9467 mL	14.7336 mL	29.4672 mL
5 mM	0.5893 mL	2.9467 mL	5.8934 mL
10 mM	0.2947 mL	1.4734 mL	2.9467 mL
50 mM	0.0589 mL	0.2947 mL	0.5893 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.

Reference

Taverna S, et al. J Pharmacol Exp Ther, 1999, 288(3), 960-968.
Gryder DS, et al. J Neurosci, 2003, 23(18), 7069-7074.
Yang Y, et al. Brain Res, 1998, 804(2), 169-176.
Kaminski RM, et al. Neuropharmacology, 2004, 46(8), 1097-1104.
Koh S, et al. Ann Neurol, 2001, 50(3), 366-372.