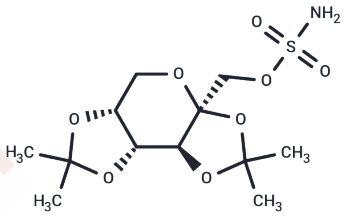
# Data Sheet (Cat.No.T0675)

TargetMol

## Topiramate

### Chemical Properties



CAS No. : 97240-79-4

Formula: C12H21NO8S

Molecular Weight: 339.36

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

### Biological Description

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| 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

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| Solubility | DMSO: 260 mg/mL (766.15 mM),Sonication is recommended.<br>Ethanol: 130 mg/mL (383.07 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |
| In vivo Formulation | 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (5.89 mM),Sonication is recommended.<br>10% DMSO+90% Saline: 10 mg/mL (29.47 mM),Solution.<br>*Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and* |

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| In vivo Formulation | *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 | 2.9467 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.

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

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.