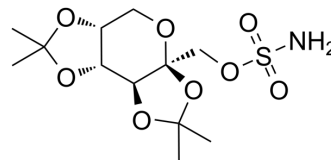


## Topiramate

<b>Cat. No.:</b>	HY-B0122
<b>CAS No.:</b>	97240-79-4
<b>Molecular Formula:</b>	C <sub>12</sub> H <sub>21</sub> NO <sub>8</sub> S
<b>Molecular Weight:</b>	339.36
<b>Target:</b>	iGluR; GABA Receptor; Sodium Channel; Calcium Channel; Potassium Channel; Carbonic Anhydrase
<b>Pathway:</b>	Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease
<b>Storage:</b>	Powder    -20°C    3 years 4°C        2 years In solvent   -80°C    2 years -20°C    1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (294.67 mM)  
 H<sub>2</sub>O : 4 mg/mL (11.79 mM; Need ultrasonic)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	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

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

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 16.67 mg/mL (49.12 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (7.37 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (7.37 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (7.37 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Topiramate (McN 4853) is a broad-spectrum antiepileptic agent. Topiramate is a GluR5 receptor antagonist. Topiramate produces its antiepileptic effects through enhancement of GABAergic activity, inhibition of kainate/AMPA receptors,

	inhibition of voltage-sensitive sodium and calcium channels, increases in potassium conductance, and inhibition of carbonic anhydrase <sup>[1][2][3]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	GluR5 receptor <sup>[1]</sup> ; GABAergic <sup>[2]</sup> ; Kainate/AMPA <sup>[2]</sup> ; Sodium channel <sup>[2]</sup> ; Calcium channel <sup>[2]</sup> ; Potassium channel <sup>[2]</sup> ; Carbonic anhydrase <sup>[2]</sup>
<b>In Vitro</b>	Topiramate has been believed to be a type of antiepileptic drug that blocks spread of seizures. Thus far, the mechanisms of its actions have been proven to include use-dependent inhibition of voltage-dependent Na <sup>+</sup> channels in neurons, potentiation of GABA (γ-amino-butyric acid)-induced Cl <sup>-</sup> influx, and inhibitory effects on inward currents by antagonizing kainate/alpha-amino-3-hydroxy-5-methylisoxazole-4-propionic acid (AMPA) receptors <sup>[2]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Acta Pharmacol Sin. 2022 Jul 27.
- Anal Chem. 2020 Dec 15;92(24):15745-15756.
- ETH Zurich. 2020 Dec.
- Personalized Medicine Universe. 2019 May.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

- [1]. Lyseng-Williamson KA, et al. Topiramate: a review of its use in the treatment of epilepsy. *Drugs*. 2007;67(15):2231-56.
- [2]. Nakamura J, et al. Target pharmacology of topiramate, a new antiepileptic drug. *Nihon Yakurigaku Zasshi*. 2000 Jan;115(1):53-7.
- [3]. Kaminski RM, et al. Topiramate selectively protects against seizures induced by ATPA, a GluR5 kainate receptor agonist. *Neuropharmacology*. 2004 Jun;46(8):1097-104.

**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA