

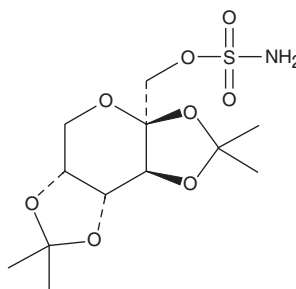
PRODUCT INFORMATION



Topiramate

Item No. 13623

CAS Registry No.: 97240-79-4
Formal Name: 2,3:4,5-bis-O-(1-methylethylidene)- β -D-fructopyranose, 1-sulfamate
Synonyms: McN 4853, RWJ 17021, TPM
MF: C₁₂H₂₁NO₈S
FW: 339.4
Purity: \geq 98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: \geq 4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Topiramate is supplied as a crystalline solid. A stock solution may be made by dissolving the topiramate in the solvent of choice, which should be purged with an inert gas. Topiramate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of topiramate in these solvents is approximately 20, 15, and 25 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of topiramate can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of topiramate in PBS (pH 7.2) is approximately 0.15 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Topiramate is a sugar sulfamate with anticonvulsant activity.¹ It inhibits carbonic anhydrase in intact human erythrocytes ($K_i = \sim 200 \mu\text{M}$), as well as blocks sodium and calcium channels and kainate-induced currents *in vitro*.¹⁻³ It also increases GABA_A receptor-mediated chloride ion flux.³ Topiramate inhibits hind-limb tonic-extensor seizures in the maximal electroshock seizure test in mice ($\text{ED}_{50} = 39 \text{ mg/kg, p.o.}$).¹ Formulations containing topiramate have been used in the treatment of epilepsy and prophylaxis of migraine headaches.

References

1. Maryanoff, B.E., Nortey, S.O., Gardocki, J.F., *et al.* Anticonvulsant O-alkyl sulfamates. 2,3:4,5-Bis-O-(1-methylethylidene)- β -D-fructopyranose sulfamate and related compounds. *J. Med. Chem.* **30**(5), 880-887 (1987).
2. Greenfield, L.J., Jr. Molecular mechanisms of antiseizure drug activity at GABA_A receptors. *Seizure* **22**(8), 589-600 (2013).
3. Rosenfeld, W.E. Topiramate: A review of preclinical, pharmacokinetic, and clinical data. *Clin. Ther.* **19**(6), 1294-1308 (1997).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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