

**Product Name:** Topiramate

**Catalog No.:** 3620

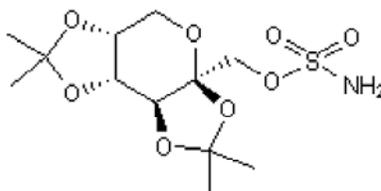
**Batch No.:** 2

CAS Number: 97240-79-4

IUPAC Name: 2,3:4,5-Bis-O-(1-methylethylidene)-β-D-fructopyranose sulfamate

**1. PHYSICAL AND CHEMICAL PROPERTIES**

**Batch Molecular Formula:** C<sub>12</sub>H<sub>21</sub>NO<sub>8</sub>S  
**Batch Molecular Weight:** 339.36  
**Physical Appearance:** White solid  
**Solubility:** DMSO to 100 mM  
ethanol to 100 mM  
**Storage:** Store at +4°C  
**Batch Molecular Structure:**



**2. ANALYTICAL DATA**

**HPLC:** Shows 100% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure  
**Optical Rotation:** [α]<sub>D</sub> = -38.1 (Concentration = 0.4, Solvent = Methanol)  
**Microanalysis:**

	Carbon	Hydrogen	Nitrogen
Theoretical	42.47	6.24	4.13
Found	42.69	6.2	4.22

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**Description:**

Anticonvulsant. Antagonizes GluK1 (formerly GluR5) kainate receptors ( $IC_{50} = 0.46 \mu M$ ), acts as a positive allosteric modulator of GABA<sub>A</sub> receptor-mediated currents, inhibits Na<sub>v</sub> channels ( $IC_{50} = 48.9 \mu M$ ) and inhibits L-type Ca<sup>2+</sup> channels. Also inhibits carbonic anhydrase (CA) ( $K_i$  values are 0.1 and 0.2  $\mu M$  at rat CA II and CA IV respectively), which lowers intracellular neuronal pH. Please refer to IUPHAR Guide to Pharmacology for the most recent naming conventions. Please see product datasheet on [www.tocris.com](http://www.tocris.com) for full description.

**Physical and Chemical Properties:**

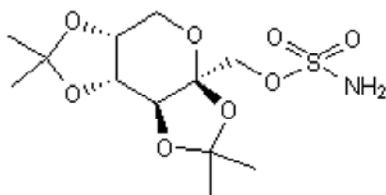
Batch Molecular Formula: C<sub>12</sub>H<sub>21</sub>NO<sub>8</sub>S

Batch Molecular Weight: 339.36

Physical Appearance: White solid

**Minimum Purity:** ≥99%

**Batch Molecular Structure:**



**Storage:** Store at +4°C

**Solubility & Usage Info:**

DMSO to 100 mM  
ethanol to 100 mM

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

**References:**

**Kaminiski et al** (2004) Topiramate selectively protects against seizures induced by ATPA, a GluR5 kainate receptor agonist. *Neuropharmacology* **46** 1097. PMID: 15111016.

**Gryder and Rogawski** (2003) Selective antagonism of GluR5 kainate-receptor-mediated synaptic currents by topir. in rat basolateral amygdala neurons. *J.Neurosci.* **23** 7069. PMID: 12904467.

**Dodgson et al** (2000) Topiramate as an inhibitor of carbonic anhydrase isoenzymes. *Epilepsia* **41** S35. PMID: 10768298.

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