bio-techne
TOCRIS

Print Date: Jun 26th 2023

Certificate of Analysis

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Product Name: **Carbamazepine**
Catalog No.: 4098 **Batch No.: 3**
CAS Number: 298-46-4
EC Number: 206-062-7
IUPAC Name: 5*H*-Dibenz[*b*,*f*]azepine-5-carboxamide

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{15}H_{12}N_2O$.

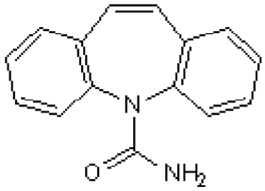
Batch Molecular Weight: 236.27

Physical Appearance: White solid

Solubility: DMSO to 100 mM
ethanol to 25 mM

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.9% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	76.25	5.12	11.86
Found	76.01	5.07	11.85

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Catalog No.: 4098 **3**

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IUPAC Name: 5*H*-Dibenz[*b*,*f*]azepine-5-carboxamide

Description:

Carbamazepine is an inhibitor of neuronal voltage-gated Na^+ channels. Exhibits anticonvulsant activity. Potentiates GABA-induced Cl^- currents in HEK 293 cells expressing the $GABA_A$ receptor α1β2γ2 subtype combination. Can induce autophagy by inhibiting inositol synthesis. Also delays disease onset and prolongs survival in a mouse amyotrophic lateral sclerosis (ALS) model, as well as reducing motor neuron loss and altered muscle morphology.

Physical and Chemical Properties:

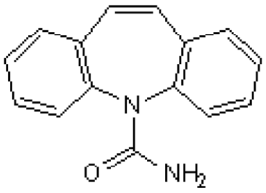
Batch Molecular Formula: $C_{15}H_{12}N_2O$.

Batch Molecular Weight: 236.27

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Store at +4°C

Solubility & Usage Info:

DMSO to 100 mM
ethanol to 25 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. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

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:

Zhang *et al* (2018) Repurposing carbamaz. for the treatment of amyotrophic lateral sclerosis in SOD1-G93A mouse model. CNS Neurosci.Ther. ***24*** 1163. PMID: 29656576.

Galluzzi *et al* (2017) Pharmacological modulation of autophagy: therapeutic potential and persisting obstacles. Nat.Rev.Drug.Discov. ***16*** 487. PMID: 28529316.

Lipkind and Fozzard (2010) Molecular model of anticonvulsant drug binding to the voltage-gated sodium channel inner pore. Mol.Pharmacol. ***78*** 631. PMID: 20643904.