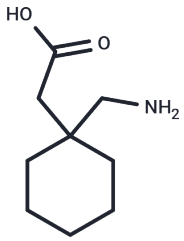
Data Sheet (Cat.No.T0702)

TargetMol

Gabapentin

Chemical Properties



CAS No. : 60142-96-3

Formula: C9H17NO2

Molecular Weight: 171.24

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

Description	Gabapentin (Neurontin) is an Anti-epileptic Agent. The physiologic effect of gabapentin is by means of Decreased Central Nervous System Disorganized Electrical Activity.
Targets(IC50)	Calcium Channel,GABA Receptor
In vitro	Administering 10-100 mg/kg of Gabapentin orally to rats results in a dose-dependent blockade of both static and dynamic allodynia.
In vivo	Gabapentin induces alterations in the cytoplasmic and extracellular concentrations of several amino acids (including L-leucine, L-valine, and L-phenylalanine) in rat cortical astrocytes and synaptosomes, suggesting pharmacological significance. In GABA B receptors composed of gb1a-GB2 subunit heterodimers, gabapentin decreases potassium-stimulated calcium influx via voltage-gated calcium channels. It potentiates N-methyl-D-aspartate-evoked currents in GABAergic rat spinal dorsal horn neurons in the presence of protein kinase C, possibly by enhancing the glycine sensitivity of the NMDA receptor complex. Gabapentin causes a delayed enhancement of indeterminate voltage-activated potassium currents in rat dorsal root ganglion neurons. In fura-2-loaded human neocortical synaptosomes, it concentration-dependently inhibits potassium(+)-induced [Ca(2+)] elevations with an IC50 of 17 mM and maximal inhibition of 37%. Gabapentin binds to the α2 delta subunit of calcium channels, selectively attenuating depolarization-induced presynaptic Ca(2+) influx through P/Q-type Ca(2+) channels, resulting in reduced glutamate/aspartate release from excitatory amino acid nerve terminals to AMPA heteroreceptors on noradrenergic nerve endings.

Solubility Information

Solubility	DMSO: Insoluble, H2O: 80 mg/mL (467.18 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.8398 mL	29.1988 mL	58.3976 mL
5 mM	1.168 mL	5.8398 mL	11.6795 mL
10 mM	0.584 mL	2.9199 mL	5.8398 mL
50 mM	0.1168 mL	0.584 mL	1.168 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

Fink K, et al. Neuropharmacology, 2002, 42(2), 229-236.
Wang H, Li X, Zhangsun D, et al. The α9α10 Nicotinic Acetylcholine Receptor Antagonist αO-Conotoxin GeXIVA[1,2] Alleviates and Reverses Chemotherapy-Induced Neuropathic Pain. Marine Drugs. 2019 May 5;17(5)
Hu G, Cui Z, Chen X, et al.Suppressing Mesenchymal Stromal Cell Ferroptosis Via Targeting a Metabolism-Epigenetics Axis Corrects their Poor Retention and Insufficient Healing Benefits in the Injured Liver Milieu.Advanced Science.2023: 2206439.
Sills GJ, et al. Curr Opin Pharmacol, 2006, 6(1), 108-113.
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Zhang T, Pan Z, Gao J, et al.Branched-chain amino acid transaminase 1 confers EGFR-TKI resistance through epigenetic glycolytic activation.Signal Transduction and Targeted Therapy.2024, 9(1): 216.
Luo W, Pan Z, Zhu X, et al.Design, Synthesis and Biological Activity Study of γ-Aminobutyric Acid (GABA) Derivatives Containing Bridged Bicyclic Skeletons as BCAT1 Inhibitors.Molecules.2025, 30(4): 904.
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