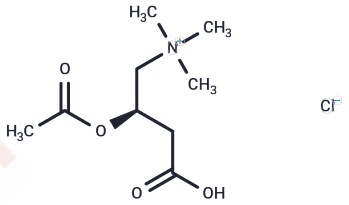
Data Sheet (Cat.No.T2563)

TargetMol

Acetyl-L-carnitine hydrochloride

Chemical Properties



CAS No. : 5080-50-2

Formula: C9H18ClNO4

Molecular Weight: 239.7

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	Acetyl-L-carnitine hydrochloride (Acetyl L-carnitine hydrochloride) is a nutritional supplement composed of the hydrochloride salt form of the acetylated form of the endogenously produced L-carnitine, with potential neuroprotective, cognitive-enhancing, anti-depressive and immunomodulating activities. It may also relieve peripheral neuropathy induced by chemotherapy, diabetes or other diseases. In addition, acetyl-L-carnitine may modulate the immune response by increasing T-lymphocytes maturation and may downregulate pro-inflammatory cytokines in response to viruses, such as SARS-CoV-2. It may also disrupt the ACE2 signaling pathway and inhibit the production of reactive oxygen species (ROS).
Targets(IC50)	Apoptosis,Caspase,Endogenous Metabolite

Solubility Information

Solubility	DMSO: 41.67 mg/mL (173.84 mM),Sonication is recommended. H2O: 50 mg/mL (208.59 mM),Sonication and heating are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (8.34 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.1719 mL	20.8594 mL	41.7188 mL
5 mM	0.8344 mL	4.1719 mL	8.3438 mL
10 mM	0.4172 mL	2.0859 mL	4.1719 mL
50 mM	0.0834 mL	0.4172 mL	0.8344 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

Stephens, F., Constantin-Teodosiu, D., & Greenhaff, P. (2007). New insights concerning the role of carnitine in the regulation of fuel metabolism in skeletal muscle. The Journal Of Physiology, 581(2), 431-444. doi: 10.1113/jphysiol.2006.125799

Wang, S., Han, C., Lee, S., Patkar, A., Masand, P., & Pae, C. (2014). A review of current evidence for acetyl-l-carnitine in the treatment of depression. Journal Of Psychiatric Research, 53, 30-37. doi: 10.12016/j.jpsychires.2014.02.2005

Cuccurazzu, B., Bortolotto, V., Valente, M., Ubezio, F., Koverech, A., Canonico, P., & Grilli, M. (2013). Upregulation of mGlu2 Receptors via NF-κB p65 Acetylation Is Involved in the Proneurogenic and Antidepressant Effects of Acetyl-L-Carnitine. Neuropsychopharmacology, 38(11), 2220-2230. doi: 10.1038/npp.2013.121