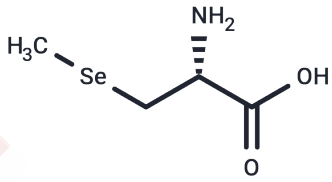
Data Sheet (Cat.No.T7727)

TargetMol

Se-Methylselenocysteine

Chemical Properties



CAS No. : 26046-90-2

Formula: C4H9NO2Se

Molecular Weight: 182.08

Storage: Keep away from direct sunlight,Store under nitrogen
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	Se-Methylselenocysteine (Se-MSC) is a potent chemopreventive agent in many test systems and has been shown to inhibit tumor promotion and induce apoptosis.
Targets(IC50)	Apoptosis,Bcl-2 Family,Beta-Secretase,Caspase,Endogenous Metabolite,IAP
In vitro	Se-Methylselenocysteine displayed strong inhibitory effects on cell proliferation and viability of SKOV-3 cells in dose and time dependent manners and induced apoptosis. Pretreatment of cells with the caspase inhibitors (z-VAD-fmk and DEVD-CHO) prevented Se-Methylselenocysteine-induced apoptosis. In late stage of apoptosis, p18kDa fragment of Bax was generated with the down-regulation of the expressions of survivin, X-linked inhibitor of apoptosis protein, and human inhibitor of apoptosis protein 1 following Se-Methylselenocysteine treatment. Pre-treatments of z-VAD-fmk and the calpain inhibitor, calpeptin inhibited Bax cleavage. Taken together, the chemopreventive effects of Se-Methylselenocysteine may be related in part to the caspase-3 activation, the down-regulation of IAP family proteins, and Bax cleavage mediated by caspase-dependent calpain activation[2].
In vivo	AD mice are treated with Se-Methylselenocysteine (0.75 mg kg-1 BW per day) in their drinking water for 10 months. Results reveal that Se-Methylselenocysteine 1) reduces oxidative stress and neuro-inflammation; 2) modulates the distribution and levels of several metal ions; 3) decreases amyloid-β peptide (Aβ) generation by inhibiting the expression of its precursor protein APP and β-secretase (BACE1); and 4) attenuates tau hyperphosphorylation and neurofibrillary tangles (NFT) formation via promoting protein phosphatase 2A (PP2A) activity, thereby preserving synaptic proteins and neuron activities and finally improving spatial learning and memory deficits in AD model mice [4].

Solubility Information

Solubility	H2O: 50.5 mg/mL (277.35 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.4921 mL	27.4605 mL	54.9209 mL
5 mM	1.0984 mL	5.4921 mL	10.9842 mL
10 mM	0.5492 mL	2.746 mL	5.4921 mL
50 mM	0.1098 mL	0.5492 mL	1.0984 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

Yao Z, Zhang Y, Li H, Deng Z, Zhang X. Synergistic effect of Se-methylselenocysteine and vitamin E in ameliorating the acute ethanol-induced oxidative damage in rat. J Trace Elem Med Biol. 2015 Jan;29:182-7. doi: 10.1016/j.jtemb.2014.08.004. PubMed PMID: 25213679.

Yang H, Jia X. Safety evaluation of Se-methylselenocysteine as nutritional selenium supplement: acute toxicity, genotoxicity and subchronic toxicity. Regul Toxicol Pharmacol. 2014 Dec;70(3):720-7. doi: 10.1016/j.yrtph.2014.10.014. PubMed PMID: 25444999.

Avila FW, Yang Y, Faquin V, Ramos SJ, Guilherme LR, Thannhauser TW, Li L. Impact of selenium supply on Se-methylselenocysteine and glucosinolate accumulation in selenium-biofortified Brassica sprouts. Food Chem. 2014 Dec 15;165:578-86. doi: 10.1016/j.foodchem.2014.05.134. PubMed PMID: 25038715.

Cao S, Durrani FA, Tóth K, Rustum YM. Se-methylselenocysteine offers selective protection against toxicity and potentiates the antitumour activity of anticancer drugs in preclinical animal models. Br J Cancer. 2014 Apr 2;110(7):1733-43. doi: 10.1038/bjc.2014.85. PubMed PMID: 24619073; PubMed Central PMCID: PMC3974093.