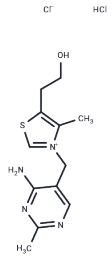
Data Sheet (Cat.No.T0894)

TargetMol

Thiamine hydrochloride

Chemical Properties



CAS No. : 67-03-8

Formula: C12H18Cl2N4OS

Molecular Weight: 337.27

Storage: Keep away from moisture
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	Thiamine hydrochloride (Vitamin B1) is an essential micronutrient and a cofactor for many central metabolic enzymes.
Targets(IC50)	Apoptosis,NF-κB,Nrf2,Endogenous Metabolite,Antibacterial,HBV,TLR
In vitro	**METHODS**: SK-N-BE cells (neuroblastoma cells) and Panc-1 cells (pancreatic cancer cells) were treated with Thiamine hydrochloride (10-5-102 mM) for 5 days, and the cell growth inhibition was detected by crystal violet assay. **RESULTS**: Thiamine hydrochloride inhibited the growth of SK-N-BE cells (IC50=4.9 mM) and Panc-1 cells (IC50=5.4 mM). [1]
In vivo	**METHODS**: To investigate the effect of Thiamine hydrochloride on memory, Thiamine hydrochloride (300 μg/kg) was administered to adult mice with scopolamine-induced memory dysfunction every other day for the last 14 days of the experiment. **RESULTS**: Thiamine hydrochloride improved memory dysfunction in mice through Nrf-2/TLR4 signaling pathway. [2] **METHODS**: To study the anti-inflammatory and anti-hyperalgesia effects of Thiamine hydrochloride, Thiamine hydrochloride (150-200 mg/kg) was administered intraperitoneally to Wistar rats with adjuvant-induced arthritis for 21 days. **RESULTS**: Thiamine hydrochloride showed anti-inflammatory and anti-hyperalgesia effects. [3] **METHODS**: To study the anti-inflammatory activity of Thiamine hydrochloride, Thiamine hydrochloride (20 mg/kg) was administered intraperitoneally to rats with colitis for 5 days. **RESULTS**: Thiamine hydrochloride attenuated macroscopic parameters and the summary colitis index in colitis rats. [4]

Solubility Information

Solubility	H2O: 95 mg/mL (281.67 mM),Sonication is recommended. DMSO: 3.37 mg/mL (9.99 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.965 mL	14.8249 mL	29.6498 mL
5 mM	0.593 mL	2.965 mL	5.930 mL
10 mM	0.2965 mL	1.4825 mL	2.965 mL
50 mM	0.0593 mL	0.2965 mL	0.593 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

Hanberry BS,et al. High-dose vitamin B1 reduces proliferation in cancer cell lines analogous to dichloroacetate. Cancer Chemother Pharmacol. 2014 Mar;73(3):585-94.
Guo Y, Suo N, Cui X, et al. Vitamin C promotes oligodendrocytes generation and remyelination. Glia. 2018, 66(7): 1302-1316
Nasir A, et al. Vitamin B1 via Nrf-2/TLR4 signaling pathway ameliorates scopolamine-induced memory dysfunction in adult mice. Arabian Journal of Chemistry, 2024, 17(1): 105350.
Zaringhalam J,et al. Long-Term Treatment by Vitamin B1 and Reduction of Serum Proinflammatory Cytokines, Hyperalgesia, and Paw Edema in Adjuvant-Induced Arthritis. Basic Clin Neurosci. 2016 Oct;7(4):331-340.
Dalayeli N, et al. Investigating the Impact of Selected B Vitamins (B1, B2, B6, and B12) on Acute Colitis Induced Experimentally in Rats. Int J Prev Med. 2024 Nov 28;15:61.
Calingasan NY, et al. Neuroreport, 1997, 8(11), 2631-2634.
Guo Y, Suo N, Cui X, et al. Vitamin C promotes oligodendrocytes generation and remyelination[J]. Glia. 2018 Jul;66 (7):1302-1316.