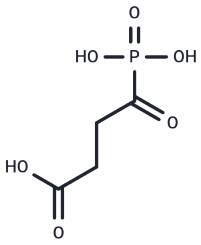
Data Sheet (Cat.No.T13020)

TargetMol

Succinyl phosphonate

Chemical Properties



CAS No. :	26647-82-5
Formula:	C4H7O6P
Molecular Weight:	182.07
Storage:	Store at low temperature,Keep away from direct sunlight 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	Succinyl phosphonate is a selective α-ketoglutarate dehydrogenase (α-KGDHC) and OGDHC inhibitor that inhibits α-ketoglutarate oxidative decarboxylation. Succinyl phosphonate trisodium salt inhibits glutamate-induced ROS generation in glutamate-stimulated hippocampal neurons and can be used to study neurodegenerative diseases.
Targets(IC50)	Reactive Oxygen Species,Endogenous Metabolite,ROS
In vitro	Succinyl phosphonate (0.01 mM) completely inhibits isolated brain KGDHC even in the presence of a 200-fold higher concentration of its substrate. In cultured human fibroblasts, 0.01 mM Succinyl phosphonate produced 70% inhibition of α-ketoglutarate dehydrogenase complex. [2] Succinyl phosphonate inhibits 2-Oxoglutarate dehydrogenase, the first rate-limiting component of the mitochondrial multi-enzyme complex of oxidative decarboxylation of 2-oxoglutarate, in a highly selective and efficient manner. [3]

Solubility Information

Solubility	H2O: 30 mg/mL (164.77 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.4924 mL	27.462 mL	54.9239 mL
5 mM	1.0985 mL	5.4924 mL	10.9848 mL
10 mM	0.5492 mL	2.7462 mL	5.4924 mL
50 mM	0.1098 mL	0.5492 mL	1.0985 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

Biryukov AI, et al. Succinyl phosphonate inhibits alpha-ketoglutarate oxidative decarboxylation, catalyzed by alpha-ketoglutarate dehydrogenase complexes from E. coli and pigeon breast muscle. FEBS Lett. 1996 Mar 11;382 (1-2):167-70.

Bunik VI, et al. Phosphonate analogues of alpha-ketoglutarate inhibit the activity of the alpha-ketoglutaratedehydrogenase complex isolated from brain and in cultured cells. Biochemistry. 2005 Aug 9;44(31): 10552-61.

Bunik VI, et al. Inhibition of mitochondrial 2-oxoglutarate dehydrogenase impairs viability of cancer cells in a cell-specific metabolism-dependent manner. Oncotarget. 2016 May 3;7(18):26400-21.