

Dimethyl malonate

Chemical Properties

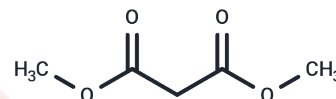
CAS No. : 108-59-8

Formula: C₅H₈O₄

Molecular Weight: 132.11

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	Dimethyl Malonate is a Succinate Dehydrogenase inhibitor.
Targets(IC50)	Apoptosis,Dehydrogenase
In vivo	Inhibiting Succinate Dehydrogenase by Dimethyl Malonate Alleviates Brain Damage in a Rat Model of Cardiac Arrest.Dimethyl malonateinhibited the activation of caspase-3 and enhanced the expression of HIF-1 α . Moreover, Dimethyl malonate inhibited excessive hyperpolarization of MMP after CPR, and prevented the release of cytochrome C. Therefore, inhibiting SDH by Dimethyl malonate alleviated brain damage after CA, and the main mechanisms included inhibiting the excessive hyperpolarization of MMP, reducing the generation of mtROS and stabilizing the structure of HIF-1 α .
Animal Research	Rats were subjected to a 6?min of CA, and cardiopulmonary resuscitation (CPR) was performed with administration of normal saline or dimethyl malonate (DMM, a competitive inhibitor of SDH). After the return of spontaneous circulation, neurological function of the rats was assessed by a tape removal test for 3?days. The rats were then sacrificed, and their brains were used to assess neuronal apoptosis by terminal deoxynucleotidyl transferase dUTP nick end labeling (TUNEL) assay. Hippocampal tissues were used for Western blotting analysis and biochemical detection. In addition, hippocampal mitochondria during CA and CPR were isolated. The relative mitochondrial membrane potential (MMP) and cytochrome C in the cytosol were detected.

Solubility Information

Solubility	H ₂ O: 123.75 mg/mL (936.72 mM),Sonication is recommended. DMSO: 100 mg/mL (756.94 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (30.28 mM),Sonication is recommended. <i>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.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	7.5694 mL	37.8472 mL	75.6945 mL
5 mM	1.5139 mL	7.5694 mL	15.1389 mL
10 mM	0.7569 mL	3.7847 mL	7.5694 mL
50 mM	0.1514 mL	0.7569 mL	1.5139 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

Xu J, Pan H, Xie X ,et .al.Inhibiting Succinate Dehydrogenase by Dimethyl Malonate Alleviates Brain Damage in a Rat Model of Cardiac Arrest[J].Neuroscience. 2018 Nov 21;393:24-32

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481