Data Sheet (Cat.No.T29457)

TargetMol

5-Hydroxydecanoic acid

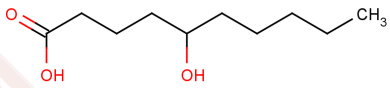
Chemical Properties

CAS No. : 624-00-0

Formula: C10H20O3

Molecular Weight: 188.26

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	5-Hydroxydecanoic acid is a selective ATP-sensitive K+ (KATP) channel blocker (IC50 of ~30 μM). 5-Hydroxydecanoic acid is a substrate for mitochondrial outer membrane acyl-CoA synthetase and has antioxidant activity.
Targets(IC50)	ATPase,Potassium Channel
In vitro	5-Hydroxydecanoate (5-HD) treatment abolishs the beneficial effects of penehyclidine hydrochloride (PHC) preconditioning in anoxia/reoxygenation (A/R)-induced injury in H9c2 cells. 5-Hydroxydecanoate blocks the inhibitory effect of PHC on Ca2+ overload and ROS production. 5-Hydroxydecanoate promotes the release of Cyt-C from mitochondria into cytoplasm. 5-Hydroxydecanoate attenuats the anti-apoptotic effect of PHC. PHC treatment shows remarkably decreases levels of Bax and cleaved caspase-3, and increases levels of Bcl-2. 5-Hydroxydecanoate pretreatment reverses the effects of PHC on their expression levels. 5-Hydroxydecanoate blocks the effects of PHC on KATP channels[1].
In vivo	5-Hydroxydecanoate (100 μM) treatment abolishes the effects of ischemic preconditioning (IPC) on the contractile recovery and does not affect its effect on the contracture, lactate production, glycogenolysis and viable tissue in rats[3].

Solubility Information

Solubility	H2O: 8 mg/mL (42.49 mM),Sonication is recommended. DMSO: 11.7 mg/mL (62.15 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.3118 mL	26.559 mL	53.118 mL
5 mM	1.0624 mL	5.3118 mL	10.6236 mL
10 mM	0.5312 mL	2.6559 mL	5.3118 mL
50 mM	0.1062 mL	0.5312 mL	1.0624 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

Congna Zi, et al. Penehyclidine hydrochloride protects against anoxia/reoxygenation injury in cardiomyocytes through ATP-sensitive potassium channels, and the Akt/GSK-3β and Akt/mTOR signaling pathways. Cell Biol Int. 2020 Jun;44(6):1353-1362.

Xiantao Li, et al. 5-Hydroxydecanoate and coenzyme A are inhibitors of native sarcolemmal KATP channels in inside-out patches. Biochim Biophys Acta. 2010 Mar;1800(3):385-91.

M G Marina Prendes, et al. Effects of 5-hydroxydecanoate and ischemic preconditioning on the ischemic-reperfused heart of fed and fasted rats. J Physiol Biochem. 2005 Sep;61(3):447-56.

Song HP, Chu ZG, Zhang DX, Dang YM, Zhang Q. PI3K-AKT Pathway Protects Cardiomyocytes Against Hypoxia-Induced Apoptosis by MitoKATP-Mediated Mitochondrial Translocation of pAKT. Cell Physiol Biochem. 2018;49(2): 717-727. doi: 10.1159/000493037. Epub 2018 Aug 30. PubMed PMID: 30165359.