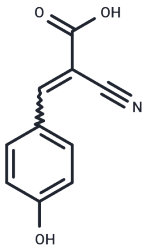
Data Sheet (Cat.No.T7460)

TargetMol

α-Cyano-4-hydroxycinnamic acid

Chemical Properties



CAS No. : 28166-41-8

Formula: C10H7NO3

Molecular Weight: 189.17

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	α-Cyano-4-hydroxycinnamic acid (α-CHCA) is an inhibitor of monocarboxylate transporter 1 (MCT1), which blocks pyruvate transport in rat heart mitochondria (IC50: 1.5 μM).
Targets(IC50)	Monocarboxylate transporter
In vitro	The effectiveness of CHC in glioma cells appears to be dependent on Monocarboxylate transporters (MCTs) membrane expression.?MCT1 downregulation showed similar effects on different glioma cells, supporting CHC as an MCT1 inhibitor.?There was a synergistic effect when combining CHC with temozolomide treatment in U251 cells.?In the CAM in vivo model, CHC decreased the size of tumors and the number of blood vessels formed[1].
Cell Research	Cells were plated into 96-well plates, at a density of 3 × 10^3 cells per well.?The effect of treatment with CHC (0.6–12 mM) on cell number (total biomass) was determined at 24, 48, and 72 h by the?sulforhodamine B assay (SRB, TOX-6).?IC50 values (CHC concentration that corresponds to 50% of cell growth inhibition) were estimated from 3 independent experiments, each one in triplicate, using GraphPad Software.?Cell proliferation assay was performed as previously described32 and assessed under the treatment conditions previously described, for 5 mM and 10 mM of CHC.?After CHC treatment, cells were incubated with BrdU and its incorporation was assessed at 450 nm (λref = 655 nm) .?Cell growth (total biomass) and cell proliferation for glioma siMCT1 cells and the effect of CHC (1.25–15 mM) on cell number were performed[1].

Solubility Information

Solubility	DMSO: 250 mg/mL (1321.56 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: 2 mg/mL (10.57 mM),Sonication is recommended. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.2863 mL	26.4313 mL	52.8625 mL
5 mM	1.0573 mL	5.2863 mL	10.5725 mL
10 mM	0.5286 mL	2.6431 mL	5.2863 mL
50 mM	0.1057 mL	0.5286 mL	1.0573 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

Miranda-Goncalves V , Honavar M , Pinheiro C , et al. Monocarboxylate transporters (MCTs) in gliomas: expression and exploitation as therapeutic targets[J]. Neuro-Oncology, 2013, 15(2):172-188.
Tong Y, Guo C, Liu Z, et al. In situ localization of tris-(2, 3-dibromopropyl) isocyanurate in mouse organs by MALDI-IMS with auxiliary matrix strategy. Talanta. 2021: 122723.
Colen C B , Shen Y , Ghoddoussi F , et al. Metabolic Targeting of Lactate Efflux by Malignant Glioma Inhibits Invasiveness and Induces Necrosis: An In Vivo Study[J]. Neoplasia, 2011, 13(7):620-632.