

Lactic acid

Chemical Properties

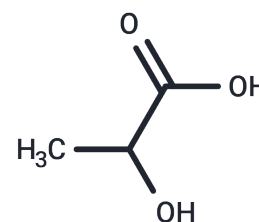
CAS No. : 50-21-5

Formula: C₃H₆O₃

Molecular Weight: 90.08

Storage: Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	Lactic acid (2-hydroxypropanoic acid), a glycolysis end product, is a hydroxycarboxylic acid receptor 1 (HCAR1) activator (EC ₅₀ =4.2-5 mM). Lactic acid can be used as a hemodynamic index in critically ill patients and has anti-tumor activity.
Targets(IC50)	Others,Endogenous Metabolite,HCAR
In vitro	<p>METHODS: : Effects on cell proliferation and migration of uveal melanoma after treatment with Lactic acid (20 mM) for 24 and 48 hours.</p> <p>RESULTS: Lactic acid led to a significant reduction in cell proliferation and migration. [1]</p> <p>Method: Uveal melanoma was treated with Lactic acid (20 mM) for 24 hours, and the protein expression level was detected by western blot.</p> <p>Result: Lactic acid promoted the increase in the protein expression levels of MCT1 and HCAR1. [1]</p>
In vivo	<p>METHODS: To detect the anti-tumor activity in vivo, Lactic acid (1.6 g/kg) was subcutaneously injected into Female C57BL/6 mice with MC38 colon cancer cells; pH 7.4 Once a day; From Day 8 to Day 30.</p> <p>RESULTS: Lactic acid demonstrated CD8+ T cell-dependent tumor growth inhibition in the MC38 colon cancer model. [2]</p>

Solubility Information

Solubility	DMSO: 90 mg/mL (999.11 mM),Sonication is recommended. H ₂ O: 100 mg/mL (1110.12 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: 5 mg/mL (55.51 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	11.1012 mL	55.5062 mL	111.0124 mL
5 mM	2.2202 mL	11.1012 mL	22.2025 mL
10 mM	1.1101 mL	5.5506 mL	11.1012 mL
50 mM	0.222 mL	1.1101 mL	2.2202 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

Lucia Longhitano, et al. Lactate Rewrites the Metabolic Reprogramming of Uveal Melanoma Cells and Induces Quiescence Phenotype. *Int J Mol Sci.* 2022 Dec 20;24(1):24.

Qiang Feng, et al. Lactate increases stemness of CD8 + T cells to augment anti-tumor immunity. *Nat Commun.* 2022 Sep 6;13(1):4981.

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