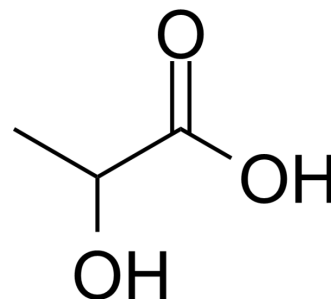


Lactate

Cat. No.:	HY-B2227
CAS No.:	50-21-5
Molecular Formula:	C ₃ H ₆ O ₃
Molecular Weight:	90.08
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	<div>Pure form</div> <div>-20°C 3 years</div> <div>4°C 2 years</div> <div>In solvent</div> <div>-80°C 6 months</div> <div>-20°C 1 month</div>



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (1110.12 mM; Need ultrasonic)
H₂O : 100 mg/mL (1110.12 mM; Need ultrasonic)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	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

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Lactate (Lactic acid) is a hydroxycarboxylic acid receptor 1 (HCAR1) activator and an epigenetic modulator inducing lysine residues lactylation. Lactate is a glycolysis end-product, bridging the gap between glycolysis and oxidative phosphorylation. Lactate is an oncometabolite and has immune protective role of lactate in anti-tumor immunity^{[1][2]}.

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

Lactate (Lactic acid; 20 mM; 24, 48 h) results in a significant decrease in cell proliferation and migration, acting and switching cell metabolism toward oxidative phosphorylation^[1].

Lactate (20 mM; 24 h) shows an increase in the protein and mRNA expression levels of MCT1 and HCAR1^[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay^[1]

Cell Line:	Uveal melanoma 92.1 cells
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Concentration:	20 mM
Incubation Time:	24, 48 h
Result:	Inhibited cell proliferation and migration.
Western Blot Analysis ^[1]	
Cell Line:	Uveal melanoma cells
Concentration:	20 mM
Incubation Time:	24 h
Result:	Showed an increase in the protein expression levels of MCT1 and HCAR1
Western Blot Analysis ^[1]	
Cell Line:	Uveal melanoma cells
Concentration:	20 mM
Incubation Time:	24 h
Result:	Induced a significant increase in mRNA expression levels of SLC16A1 and HCAR1.

In Vivo

Lactate (Lactic acid; 1.6 g/kg; subcutaneous; daily from Day 8 to 30 days) shows CD8+ T cell-dependent tumor growth inhibition in MC38 colon cancer model^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female C57BL/6 mice with MC38 colon cancer cells ^[2]
Dosage:	1.6 g/kg
Administration:	Subcutaneous; daily from Day 8 to 30 days
Result:	Significantly suppressed tumor growth.

CUSTOMER VALIDATION

- Cell Res. 2023 Jul 13.
- J Exp Clin Cancer Res. 2024 Mar 5;43(1):68.
- J Ginseng Res. 2023 Dec 27.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. 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.

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

Caution: Product has not been fully validated for medical applications. For research use only.

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