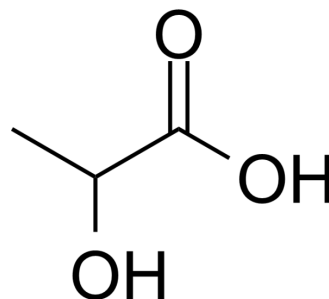


## Lactate

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



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (1110.12 mM; Need ultrasonic)  
 H<sub>2</sub>O : 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<sup>[1][2]</sup>.

#### IC<sub>50</sub> & 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<sup>[1]</sup>.

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

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

Cell Proliferation Assay<sup>[1]</sup>

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 <sup>[1]</sup>	
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 <sup>[1]</sup>	
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<sup>[2]</sup>.

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 <sup>[2]</sup>
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.

See more customer validations on [www.MedChemExpress.com](http://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.

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

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