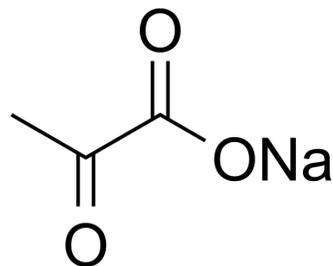


Sodium 2-oxopropanoate

Cat. No.:	HY-W015913
CAS No.:	113-24-6
Molecular Formula:	C ₃ H ₃ NaO ₃
Molecular Weight:	110
Target:	Endogenous Metabolite; Reactive Oxygen Species
Pathway:	Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 100 mg/mL (909.09 mM); Need ultrasonic				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM	9.0909 mL	45.4545 mL	90.9091 mL
		5 mM	1.8182 mL	9.0909 mL	18.1818 mL
		10 mM	0.9091 mL	4.5455 mL	9.0909 mL
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	1. Add each solvent one by one: PBS Solubility: 50 mg/mL (454.55 mM); Clear solution; Need ultrasonic				

BIOLOGICAL ACTIVITY

Description	Sodium 2-oxopropanoate (Sodium pyruvate), a three-carbon metabolite of Glucose, is a compound produced in the glycolytic pathway. Sodium 2-oxopropanoate is a free radical scavenger that can scavenge ROS ^{[1][2]} .	
IC₅₀ & Target	Microbial Metabolite	Human Endogenous Metabolite
In Vitro	<p>In the process of scavenging hydrogen peroxide, Sodium 2-oxopropanoate (Sodium pyruvate) is decarboxylated to lactate and hence diverted away from aerobic metabolism and further ROS generation. Under conditions in which pyruvate stimulated JNK1 activity, both mitochondrial and cytosolic ROS levels rose. An increase in JNK1 activity in a variety of different cell types over a range of pyruvate concentrations are observed^[1].</p> <p>Sodium 2-oxopropanoate (Sodium pyruvate) is an effective scavenger of H₂O₂ as well as of O₂⁻, thereby protecting the lens against oxidative stress and consequent cataract formation, under in vitro as well as in vivo conditions, Sodium 2-oxopropanoate has also been shown to protect the lens proteins against glycation by competitively inhibiting the initial reaction between the sugar carbonyl and the protein -NH₂^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	

In Vivo

Neonatal rats are given a bolus of Sodium 2-oxopropanoate (Sodium pyruvate; 0.1-10 g/kg), and 1 h later, levels of JNK1 activity were determined in liver extracts. Sodium 2-oxopropanoate (Sodium pyruvate) addition resulted in a significant increase in JNK1 activity. Analysis of serum levels of Sodium 2-oxopropanoate in neonatal rats revealed that baseline levels of pyruvate are 0.30 mM. At the time of sacrifice, following the largest dose of Sodium 2-oxopropanoate, serum levels rose approximately sixfold to 1.84 mM^[1].

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CUSTOMER VALIDATION

- Cell Death Dis. 2023 Apr 6;14(4):246.
- Cell Prolif. 2023 Apr 21;e13442.
- Int Immunopharmacol. 2023 May 12;120:110292.

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REFERENCES

[1]. S Nemoto, et al. Role for mitochondrial oxidants as regulators of cellular metabolism. Mol Cell Biol. 2000 Oct;20(19):7311-8.

[2]. W Zhao, et al. Fructose induced deactivation of antioxidant enzymes: preventive effect of pyruvate. Free Radic Res. 2000 Jul;33(1):23-30.

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

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