α-Hydroxyglutaric acid disodium

Cat. No.: HY-113038A

CAS No.: 40951-21-1

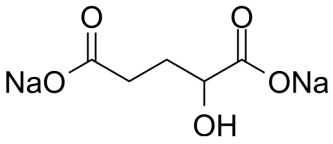
Molecular Formula: $C_5H_6Na_2O_5$

Molecular Weight: 192.08

Target: Histone Demethylase; Endogenous Metabolite

Pathway: Epigenetics; Metabolic Enzyme/Protease

Storage: -20°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_2O : 125 mg/mL (650.77 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	5.2062 mL	26.0308 mL	52.0616 mL
	5 mM	1.0412 mL	5.2062 mL	10.4123 mL
	10 mM	0.5206 mL	2.6031 mL	5.2062 mL

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

BIOLOGICAL ACTIVITY

Description

α-Hydroxyglutaric acid (2-Hydroxyglutarate) disodium is an α-hydroxy acid form of glutaric acid. α-Hydroxyglutaric acid disodium is a competitive inhibitor of multiple α-ketoglutarate-dependent dioxygenases, including histone demethylases and the TET family of 5-methlycytosine (5mC) hydroxylases[1].

IC_{50} & Target	Microbial Metabolite	Human Endogenous Metabolite

In Vitro

Isocitrate Dehydrogenase 1 (IDH1) and IDH2 mutations occur frequently in gliomas and acute myeloid leukemia, leading to simultaneous loss and gain of activities in the production of α-ketoglutarate (α-KG) and α-Hydroxyglutaric acid (2-Hydroxyglutarate) disodium, respectively[1].

α-Hydroxyglutaric acid (2-Hydroxyglutarate) disodium inhibits the activity of multiple histone demethylases. α-Hydroxyglutaric acid occupies the same space as α-KG does in the active site of histone demethylases. α-Hydroxyglutaric acid (2-Hydroxyglutarate) disodium inhibits the activity of TET 5-methylcytosine hydroxylases[1].

Treatment of U-87MG cells with α-Hydroxyglutaric acid (2-Hydroxyglutarate; 10-50 mM) disodium increases HIF-1α and decreases endostatin[1].

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

REFERENCES

[1]. Wei Xu, et al. Oncometabolite 2-hydroxyglutarate is a competitive inhibitor of α-ketoglutarate-dependent dioxygenases. Cancer Cell. 2011 Jan 18;19(1):17-30.

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