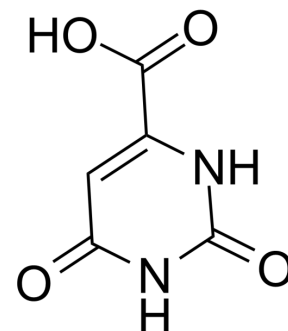


Orotic acid

Cat. No.:	HY-N0157		
CAS No.:	65-86-1		
Molecular Formula:	C ₅ H ₄ N ₂ O ₄		
Molecular Weight:	156.1		
Target:	Nucleoside Antimetabolite/Analog; Endogenous Metabolite		
Pathway:	Cell Cycle/DNA Damage; Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 55 mg/mL (352.34 mM; Need ultrasonic)
 H₂O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	6.4061 mL	32.0308 mL	64.0615 mL
	5 mM	1.2812 mL	6.4061 mL	12.8123 mL
	10 mM	0.6406 mL	3.2031 mL	6.4061 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
 Solubility: ≥ 2.75 mg/mL (17.62 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Orotic acid (6-Carboxyuracil), a precursor in biosynthesis of pyrimidine nucleotides and RNA, is released from the mitochondrial dihydroorotate dehydrogenase (DHODH) for conversion to UMP by the cytoplasmic UMP synthase enzyme. Orotic acid is a marker for measurement in routine newborn screening for urea cycle disorders. Orotic acid can induce hepatic steatosis and hepatomegaly in rats^{[1][2][3]}.

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

Orotic acid is found in milk and dairy products, and it is converted to uridine for use in the pyrimidine salvage pathway predominantly in liver, kidney and erythrocytes^[2].

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

In Vivo

Orotic acid is a marker for measurement of urea cycle disorders (UCDs), including ornithine transcarbamylase deficiency (OTCD)^[2].

Orotic acid (1.0% addition to the diet; p.o. for 3-10 d) induces a development of fatty liver by day 7, and decreases purine/pyrimidine ratio of hepatic acid-soluble nucleotides by day 3^[3].

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

CUSTOMER VALIDATION

- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.

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REFERENCES

- [1]. Löffler M, et, al. Orotate (orotic acid): An essential and versatile molecule. Nucleosides Nucleotides Nucleic Acids.
- [2]. Staretz-Chacham O, et, al. The role of orotic acid measurement in routine newborn screening for urea cycle disorders. J Inherit Metab Dis. 2020 Nov 15.
- [3]. Durschlag RP, et, al. Orotic acid-induced metabolic changes in the rat. J Nutr. 1980 Apr;110(4):816-21.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA