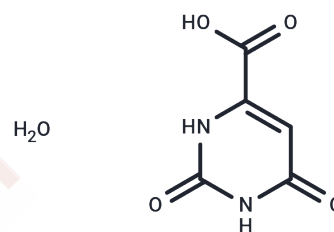


## Orotic acid monohydrate

## Chemical Properties

CAS No. : 50887-69-9  
 Formula: C<sub>5</sub>H<sub>6</sub>N<sub>2</sub>O<sub>5</sub>  
 Molecular Weight: 174.11  
 Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year  
 Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Orotic acid monohydrate is an intermediate product in pyrimidine metabolism.
Targets(IC50)	Endogenous Metabolite
In vitro	Orotic acid increases cell proliferation and decreases apoptosis in serum-starved SK-Hep1 hepatocellular carcinoma cells, which may ascribe to the inhibition of AMP-activated protein kinase (AMPK) phosphorylation and thus activation of mammalian target of rapamycin complex 1 (mTORC1) [1].
In vivo	Male Fischer 344 rats (130-150 g) to two-thirds PH in the absence or in the presence of Orotic acid (a 300-mg tablet of Orotic acid methyl ester implanted intraperitoneally at the time of two-thirds PH). treatment with Orotic acid resulted in a near-100% inhibition of RNR induced by two-thirds PH in rat liver, as monitored by enzyme activity and protein level [2]. Feeding 1% Orotic acid with diet decreased the phosphorylation of AMPK and increased the maturation of SREBP-1 and the expression of SREBP-responsive genes in the rat liver. Orotic acid-induced lipid accumulation was also completely inhibited by rapamycin. Mouse hepatocytes and mice were resistant to Orotic acid-induced lipogenesis because of little if any response in AMPK and downstream effectors [3].

## Solubility Information

Solubility	DMSO: 2.5 mg/mL (14.36 mM), Sonication is recommended. Ethanol: < 1 mg/mL (insoluble or slightly soluble), H <sub>2</sub> O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
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### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	5.7435 mL	28.7175 mL	57.435 mL
5 mM	1.1487 mL	5.7435 mL	11.487 mL
10 mM	0.5743 mL	2.8717 mL	5.7435 mL
50 mM	0.1149 mL	0.5743 mL	1.1487 mL

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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

- Jung, E.J., et al, Proliferating effect of orotic acid through mTORC1 activation mediated by negative regulation of AMPK in SK-Hep1 hepatocellular carcinoma cells. *J Toxicol Sci*, 2012. 37(4): p. 813-21.
- Manjeshwar, S., et al., The regulation of ribonucleoside diphosphate reductase by the tumor promoter orotic acid in normal rat liver in vivo. *Mol Carcinog*, 1999. 24(3): p. 188-96.
- Jung, E.J., et al., Role of the AMPK/SREBP-1 pathway in the development of orotic acid-induced fatty liver. *J Lipid Res*, 2011. 52(9): p. 1617-25.

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