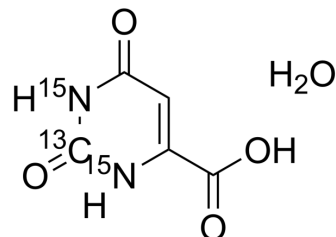


Orotic acid-¹³C,¹⁵N₂ monohydrate

| | |
|---------------------------|--|
| Cat. No.: | HY-N0157S1 |
| CAS No.: | 1346602-15-0 |
| Molecular Formula: | C ₄ ¹³ CH ₆ ¹⁵ N ₂ O ₅ |
| Molecular Weight: | 177.09 |
| Target: | Nucleoside Antimetabolite/Analog; Endogenous Metabolite |
| Pathway: | Cell Cycle/DNA Damage; Metabolic Enzyme/Protease |
| 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

DMSO : 55 mg/mL (310.58 mM; Need ultrasonic and warming)

| Concentration | Mass | | | |
|---------------|-----------|------------|------------|--|
| | 1 mg | 5 mg | 10 mg | |
| 1 mM | 5.6468 mL | 28.2342 mL | 56.4685 mL | |
| 5 mM | 1.1294 mL | 5.6468 mL | 11.2937 mL | |
| 10 mM | 0.5647 mL | 2.8234 mL | 5.6468 mL | |

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

BIOLOGICAL ACTIVITY

Description

Orotic acid-¹³C,¹⁵N₂ (monohydrate) is the ¹³C and ¹⁵N labeled Orotic acid[1]. 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[2][3][4].

In Vitro

Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

- [1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother*. 2019 Feb;53(2):211-216.
- [2]. Löffler M, et al. Orotate (orotic acid): An essential and versatile molecule. *Nucleosides Nucleotides Nucleic Acids*.

[3]. 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.

[4]. 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.

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