Citric acid-$^{13}C_6$

Cat. No.: HY-N1428S1

CAS No.: 287389-42-8

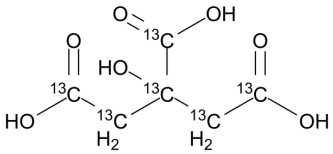
Molecular Formula: $^{13}C_6H_8O_7$

Molecular Weight: 198.08

Target: Apoptosis; Bacterial; Endogenous Metabolite; Antibiotic

Pathway: Apoptosis; Anti-infection; 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

H_2O : 100 mg/mL (504.85 mM; Need ultrasonic)
H_2O : 100 mg/mL (504.85 mM; Need ultrasonic)
DMSO : 100 mg/mL (504.85 mM; Need ultrasonic)
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Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.0485 mL	25.2423 mL	50.4847 mL
5 mM	1.0097 mL	5.0485 mL	10.0969 mL
10 mM	0.5048 mL	2.5242 mL	5.0485 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (12.62 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (12.62 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Citric acid-$^{13}C_6$ is the ^{13}C-labeled Citric acid. Citric acid is a weak organic tricarboxylic acid found in citrus fruits. Citric acid is a natural preservative and food tartness enhancer.

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;53(2):211-216.

[2]. Ying TH, et al. Citric acid induces cell-cycle arrest and apoptosis of human immortalized keratinocyte cell line (HaCaT) via caspase- and mitochondrial-dependent signaling pathways. Anticancer Res. 2013 Oct;33(10):4411-20.

[3]. Abdel-Salam OM, et al. Citric acid effects on brain and liver oxidative stress in lipopolysaccharide-treated mice. J Med Food. 2014 May;17(5):588-98.

[4]. Lacour B, et al. Stimulation by citric acid of calcium and phosphorus bioavailability in rats fed a calcium-rich diet. Miner Electrolyte Metab. 1997;23(2):79-87.

[5]. Nagai R, et al. Citric acid inhibits development of cataracts, proteinuria and ketosis in streptozotocin (type 1) diabetic rats. Biochem Biophys Res Commun. 2010 Feb 26;393(1):118-22.

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