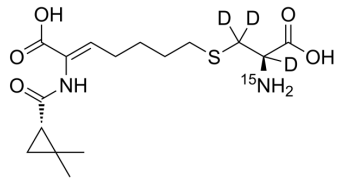
Cilastatin-^{15}N,d_3

Cat. No.:	HY-A0166S
CAS No.:	2738376-83-3
Molecular Formula:	$C_{16}H_{23}D_3N^{15}NO_5S$
Molecular Weight:	362.46
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

1M NaOH : 100 mg/mL (275.89 mM; ultrasonic and adjust pH to 12 with NaOH)
DMSO : 100 mg/mL (275.89 mM; Need ultrasonic)
H2O : 12.5 mg/mL (34.49 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.7589 mL	13.7946 mL	27.5893 mL
5 mM	0.5518 mL	2.7589 mL	5.5179 mL
10 mM	0.2759 mL	1.3795 mL	2.7589 mL

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

BIOLOGICAL ACTIVITY

Description

Cilastatin-^{15}N,d_3 is a ^{15}N-labeled and deuterium labeled Cilastatin. Cilastatin (MK0791) is a reversible, competitive renal dehydropeptidase I inhibitor with an IC50 of 0.1 μM. Cilastatin inhibits the bacterial metallob-lactamase enzyme CphA with an IC50 of 178 μM. Cilastatin is an antibacterial adjunct[1][2][3].

IC_{50} & Target

β-lactam

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[5].

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):211-223.

[2]. Blanca Humanes, et al. Protective Effects of Cilastatin Against Vancomycin-Induced Nephrotoxicity. Biomed Res Int. 2015;2015:704382.

[3]. P J Petersen, et al. In Vitro and in Vivo Activities of LJC10,627, a New Carbapenem With Stability to Dehydropeptidase I. Antimicrob Agents Chemother. 1991 Jan;35(1):203-7.

[4]. The renal membrane dipeptidase (dehydropeptidase I) inhibitor, cilastatin, inhibits the bacterialmetallo-beta-lactamase enzyme CphA. Antimicrob Agents Chemother. 1995 Jul;39(7):1629-31.

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