NHC-diphosphate triammonium

Cat. No.: HY-135867F

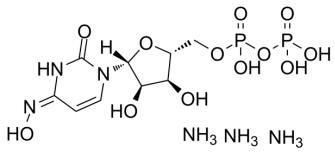
Molecular Formula: $C_9H_{24}N_6O_{12}P_2$

Molecular Weight: 470.27

Target: Endogenous Metabolite; Enterovirus; HCV; Topoisomerase; SARS-CoV

Pathway: Metabolic Enzyme/Protease; Anti-infection; Cell Cycle/DNA Damage

Storage: -20°C, protect from light, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 160 mg/mL (340.23 mM; Need ultrasonic and warming)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1264 mL	10.6322 mL	21.2644 mL
	5 mM	0.4253 mL	2.1264 mL	4.2529 mL
	10 mM	0.2126 mL	1.0632 mL	2.1264 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 50 mg/mL (106.32 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

NHC-diphosphate triammonium is an active phosphorylated intracellular metabolite of β-d-N4-Hydroxycytidine (NHC) (HY-125033) as a diphosphate form[1]. NHC-diphosphate triammonium is a weak alternative substrate for the viral polymerase and can be incorporated into HCV replicon RNA[1][2].

In Vitro

In an intracellular metabolism assay, HCV replicon cells are treated with 10 μM ^{3}H-labeled NHC, and intracellular nucleotide levels are determined after 1, 2 and 8 hours incubations. NHC is rapidly convered into the mono-, di-, and triphosphate forms, and NHC-TP reaches up to 71.12 pM after 8 hours[1].
NHC-triphosphate triammonium (NHC-TP) (5-40 μM) absence leads to full-length polymerization products, it can be a weak alternative substrate. In addition, incorporation of NHC-TP instead of CTP increases the molecular weight of the polymerization product by 16 (one extra oxygen) for each event and an obvious electrophoretic shift is observed in cell-free HCV NS5B polymerization reactions[1].
Huh-7 cells are incubated with (10-50 μM; 4 h) NHC or a McGuigan phosphoramidate prodrug of NHC. Intracellular levels of the parental compounds and phosphorylated metabolites are measured using LC-MS/MS. Small amounts of NHC-monophosphate (MP) and NHC-diphosphate (DP) can be observed, while NHC-triphosphate triammonium (HY-135867)

remains the most abundant metabolite[2].
NHC-triphosphate triammonium (NHC-TP) metabolite may directly target the viral polymerase and behave as a nonobligate chain terminator. It plays a prominent role in inhibiting early negative-strand RNA synthesis, either through chain termination or mutagenesis, which may in turn interfere with correct replicase complex formation.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int J Biol Macromol. 2022 Dec 14;226:946-955.

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REFERENCES

[1]. Stuyver LJ,et al. Ribonucleoside analogue that blocks replication of bovine viral diarrhea and hepatitis C viruses in culture.Antimicrob Agents Chemother. 2003 Jan;47(1):244-54.

[2]. Maryam Ehteshami, et al. Characterization of β-d- N4-Hydroxycytidine as a Novel Inhibitor of Chikungunya Virus.

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