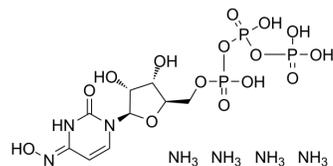


NHC-triphosphate tetraammonium

Cat. No.:	HY-135867E
Molecular Formula:	C ₉ H ₂₈ N ₇ O ₁₅ P ₃
Molecular Weight:	567.28
Target:	Endogenous Metabolite; Enterovirus; HCV; Topoisomerase; SARS-CoV
Pathway:	Metabolic Enzyme/Protease; Anti-infection; Cell Cycle/DNA Damage
Storage:	-80°C, protect from light, stored under nitrogen



SOLVENT & SOLUBILITY

In Vitro

H₂O : 200 mg/mL (352.56 mM; Need ultrasonic and warming)
 DMSO : 170 mg/mL (299.68 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	1.7628 mL	8.8140 mL	17.6280 mL
	5 mM	0.3526 mL	1.7628 mL	3.5256 mL
	10 mM	0.1763 mL	0.8814 mL	1.7628 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 100 mg/mL (176.28 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 4.25 mg/mL (7.49 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 4.25 mg/mL (7.49 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 4.25 mg/mL (7.49 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

NHC-triphosphate tetraammonium is an active phosphorylated intracellular metabolite of β-d-N4-Hydroxycytidine (NHC) (HY-125033) as a triphosphate form^[1]. NHC-triphosphate tetraammonium 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 ³H-labeled NHC, and intracellular nucleotide levels are determined after 1, 2 and 8 hours incubations. NHC is rapidly converted into the mono-, di-, and triphosphate

forms, and NHC-TP reaches up to 71.12 pM after 8 hours^[1].

NHC-triphosphate tetraammonium (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 tetraammonium (HY-135867) remains the most abundant metabolite^[2].

NHC-triphosphate tetraammonium (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

- ACS Bio Med Chem Au. October 24, 2022.
- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.
- ACS Sens. 2022 May 27;7(5):1564-1571.
- J Biol Chem. 2021 May 11;100770.
- Commun Biol. 2022 Feb 22;5(1):154.

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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.

Caution: Product has not been fully validated for medical applications. For research use only.

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