Bemnifosbuvir hemisulfate

Cat. No.: HY-137958

CAS No.: 2241337-84-6

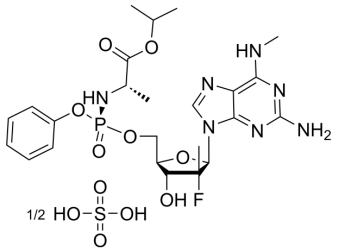
Molecular Formula: $C_{24}H_{33}FN_7O_7P.1/2H_2O_4S$

Molecular Weight: 630.58

Target: HCV; SARS-CoV

Pathway: Anti-infection

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 : 180 mg/mL (285.45 mM; Need ultrasonic)
H_2O : ≥ 100 mg/mL (158.58 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.5858 mL	7.9292 mL	15.8584 mL
	5 mM	0.3172 mL	1.5858 mL	3.1717 mL
	10 mM	0.1586 mL	0.7929 mL	1.5858 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: ≥ 5 mg/mL (7.93 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 5 mg/mL (7.93 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5 mg/mL (7.93 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Bemnifosbuvir hemisulfate (AT-527), a hemisulfate salt of AT-511, a guanosine nucleotide proagent, is a potent and orally active HCV viral replication inhibitor. Bemnifosbuvir hemisulfate is highly effective in the control of SARS-CoV-2 (COVID-19) infection in vitro (EC_{90}=0.47 μM). Bemnifosbuvir hemisulfate has pangenotypic antiviral activity[1][2][3].

IC_{50} & Target

EC50: 5-28 nM (HCV)[1]
EC90: 0.47 μM (SARS-CoV-2)[2]

In Vitro	Bemnifosbuvir hemisulfate has pan-genotypic antiviral activities that inhibits HCV genotype 1a (HCV GT1a), HCV GT1b, HCV GT2a, HCV GT3a, HCV GT4a, and HCV GT5a replication with EC_{50} values of 12.8 nM, 12.5 nM, 9.2 nM, 10.3 nM, 14.7 nM, and 28.5 nM, respectively[1]. In normal human airway epithelial cells, the concentration of Bemnifosbuvir hemisulfate required to inhibit replication of SARS-CoV-2 by EC_{90} is 0.47 μM, very similar to its EC_{90} against HCoV-229E, HCoV-OC43 and SARS-CoV in Huh-7 cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	When given orally to rats (500 mg/kg) and monkeys (30 mg/kg, 100 mg/kg or 300 mg/kg), Bemnifosbuvir hemisulfate preferentially delivers high levels of AT-9010 in the liver in vivo[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- bioRxiv. December 23, 2021.

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REFERENCES

[1]. Steven S Good, et al. Preclinical evaluation of AT-527, a novel guanosine nucleotide prodrug with potent, pan-genotypic activity against hepatitis C virus. PLoS One. 2020 Jan 8;15(1):e0227104.

[2]. Steven S Good, et al. AT-527, a double prodrug of a guanosine nucleotide analog, is a potent inhibitor of SARS-CoV-2 in vitro and a promising oral antiviral for treatment of COVID-19. Antimicrob Agents Chemother. 2021 Feb 8;AAC.02479-20.

[3]. Elina Berliba, et al. Safety, pharmacokinetics and antiviral activity of AT-527, a novel purine nucleotide prodrug, in HCV-infected subjects with and without cirrhosis. Antimicrob Agents Chemother. 2019 Sep 30;63(12):e01201-19.

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