ST-193 hydrochloride

Cat. No.: HY-101441A

CAS No.: 2320274-72-2

Molecular Formula: $C_{24}H_{26}ClN_3O$

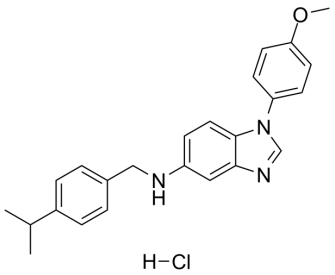
Molecular Weight: 407.94

Target: Arenavirus

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 : ≥ 150 mg/mL (367.70 mM)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.4513 mL	12.2567 mL	24.5134 mL
5 mM	0.4903 mL	2.4513 mL	4.9027 mL
10 mM	0.2451 mL	1.2257 mL	2.4513 mL

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

BIOLOGICAL ACTIVITY

Description

ST-193 hydrochloride is a potent broad-spectrum arenavirus inhibitor; inhibits Guanarito, Junin, Lassa and Machupo virus with IC_{50} values of 0.44, 0.62, 1.4 and 3.1 nM, respectively.

IC_{50} & Target

IC50: 0.44 nM (Guanarito), 0.62 nM (Junin), 1.4 nM (Lassa) and 3.1 nM (Machupo)[1]

In Vitro

ST-193 inhibits LASV pseudotypes with an IC_{50} of 1.6 nM. ST-193 inhibits pseudotypes generated with other arenavirus envelopes as well, including the remaining four commonly associated with hemorrhagic fever (IC_{50}s for Junín, Machupo, Guanarito, and Sabiá are in the 0.2 to 12 nM range) but exhibits no antiviral activity against pseudotypes incorporating either the GP from the LASV-related arenavirus lymphocytic choriomeningitis virus or the unrelated G protein from vesicular stomatitis virus, at concentrations of up to 10 μM[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

ST-193 is found to be tolerated well when administered daily as an intraperitoneal injection of either 25 or 100 mg/kg/day for 14 days. ST-193-treated animals exhibit fewer signs of disease and enhance survival when compared to the ribavirin or vehicle groups. Body temperatures in all groups are elevated by day 9, but returned to normal by day 19 postinfection in the

majority of ST-193-treated animals. ST-193 treatment mediates a 2- to 3-log reduction in viremia relative to vehicle-treated controls. The overall survival rate for the ST-193-treated guinea pigs is 62.5% (10/16) compared with 0% in the ribavirin (0/8) and vehicle (0/7) groups[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]

Guinea pigs: ST-193 is formulated as a solution in 32% (w/v) 2-hydroxypropyl-β-cyclodextrin (HP-β-CD). Female Hartley guinea pigs are injected intraperitoneally with a 10 mg/mL solution of ST-193 at a volume of either 2.5 mL per kg of body weight (25 mg/kg) or 10 mL per kg (100 mg/kg). Four animals per dose are used, with blood samples collected from two animals per dose at each time point in alternating fashion. Blood samples are obtained at the indicated time points (4-24 h) [3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2018, 53(5): 735-742.
- Antiviral Res. 2019 Jul;167:68-77.
- bioRxiv. 2021 Mar 22.

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REFERENCES

[1]. Burgeson JR, et al. Discovery and optimization of potent broad-spectrum arenavirus inhibitors derived from benzimidazole and related heterocycles. Bioorg Med Chem Lett. 2013 Feb 1;23(3):750-6.

[2]. Larson RA, et al. Identification of a broad-spectrum arenavirus entry inhibitor. J Virol. 2008 Nov;82(21):10768-75.

[3]. Cashman KA, et al. Evaluation of Lassa antiviral compound ST-193 in a guinea pig model. Antiviral Res. 2011 Apr;90(1):70-9.

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