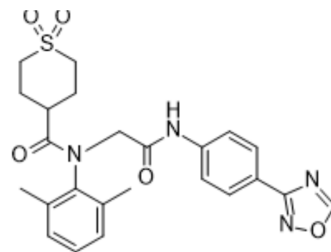


Amenamevir

Cat. No.:	HY-14809		
CAS No.:	841301-32-4		
Molecular Formula:	C ₂₄ H ₂₆ N ₄ O ₅ S		
Molecular Weight:	482.55		
Target:	HSV		
Pathway:	Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (103.62 mM)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.0723 mL	10.3616 mL	20.7232 mL
	5 mM	0.4145 mL	2.0723 mL	4.1446 mL
	10 mM	0.2072 mL	1.0362 mL	2.0723 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
 Solubility: ≥ 2.08 mg/mL (4.31 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
 Solubility: ≥ 2.08 mg/mL (4.31 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
 Solubility: ≥ 2.08 mg/mL (4.31 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Amenamevir is a helicase-primase inhibitor which has potent antiviral activity against HSVs with an EC₅₀ of 14 ng/mL.

IC₅₀ & Target

HSV-1 7.7-20 ng/mL (IC ₅₀)	HSV-2 15-58 ng/mL (IC ₅₀)
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In Vitro

Amenamevir (ASP2151) inhibits the replication of the HSV strains isolated in Japan and the United States as well as the

laboratory-stocked strains. The mean EC₅₀s of Amenamevir against HSV-1 and HSV-2 are 14 (range, 7.7 to 20) and 30 ng/mL (range, 15 to 58), respectively, whereas those of acyclovir (ACV) are 29 (range, 18 to 38) and 71 ng/mL (range, 45 to 95), respectively. The EC₅₀s of Amenamevir against HSV strains are significantly lower than those of ACV^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Amenamevir (ASP2151) administration accelerates the reduction in virus titer in a dose-dependent manner in the range of 3 to 30 mg/kg/day. Amenamevir treatment decreases both lesion scores and HSV-1 titers in a dose-dependent manner, irrespective of the dosing interval. Based on the correlation curves, the PK parameters at which HSV-1 growth is completely suppressed by oral administration of Amenamevir are estimated to be 10,000 ng/mL or higher for the maximum concentration of drug in serum (C_{max}), 60 µg • h/ml or higher for concentration-time curve over 24 h (AUC_{24h}), and 21 to 24 h for T_{>100}. The mean concentration of Amenamevir in plasma at 5 days postinfection increases in a dose-dependent manner, with doses of 3 mg Amenamevir/g or higher significantly reducing the intradermal HSV-1 titer^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[1]

The antiviral activities of Amenamevir (ASP2151) and ACV against HSVs are tested using a plaque reduction assay. Briefly, HEF cells are seeded into multi well plates and incubated until they form a monolayer. After the medium is removed, the cells are infected with HSV-1 or HSV-2, and the plates are further incubated for 1 h at 37°C. The cells are washed twice with maintenance medium and then treated with the test compound (including Amenamevir) until clear plaques appear. The cells are then fixed with 10% formalin in phosphate-buffered saline, stained with a 0.02% crystal violet solution, and the number of plaques is determined under a light microscope. The EC₅₀, which represents the concentration of test compound needed to reduce the plaque number by 50%, is calculated using nonlinear regression analysis with a sigmoid-maximum effect (E_{max}) model^[1].

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

Animal Administration ^[1]

Female hairless mice (HOS:HR-1, 7 to 8 weeks old) are infected with a suspension of HSV-1 strain WT51 (15 µL/mouse; titer, 2×10⁸ PFU/mL) or CI-116 (15 µL/mouse; titer, 4×10⁷ PFU/mL) in the dorsolateral skin stripped as a small square using a needle, under anesthesia. The day of HSV-1 infection is designated day zero postinfection. Total daily doses of 1, 3, 10, 30, or 100 mg/kg/day ASP2151 are orally administered to HSV-1-infected mice (n=5) for 5 days. Amenamevir (ASP2151) treatments are started 2 to 3 h after HSV infection either as a single daily dose (every 24 h, q24h) or as two (every 12 h, q12h) or three (every 8 h, q8h) divided doses. Lesion scores and intradermal HSV-1 titers are measured on day 5 postinfection^[1].

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

REFERENCES

[1]. Katsumata K, et al. Pharmacokinetics and pharmacodynamics of ASP2151, a helicase-primase inhibitor, in a murine model of herpes simplex virus infection. *Antimicrob Agents Chemother.* 2013 Mar;57(3):1339-46.

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

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