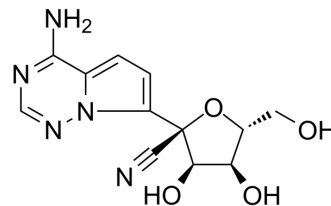


GS-441524

Cat. No.:	HY-103586		
CAS No.:	1191237-69-0		
Molecular Formula:	C ₁₂ H ₁₃ N ₅ O ₄		
Molecular Weight:	291.26		
Target:	DNA/RNA Synthesis; SARS-CoV		
Pathway:	Cell Cycle/DNA Damage; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 83.33 mg/mL (286.10 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	3.4334 mL	17.1668 mL	34.3336 mL
	5 mM	0.6867 mL	3.4334 mL	6.8667 mL
	10 mM	0.3433 mL	1.7167 mL	3.4334 mL

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

In Vivo

- Add each solvent one by one: 5% ethanol, 30% propylene glycol, 45% PEG 400, 20% water (pH 1.5 with HCl)
Solubility: 10 mg/mL (34.33 mM); Clear solution; Need ultrasonic and adjust pH to 2 with HCl
- Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline
Solubility: ≥ 2.75 mg/mL (9.44 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (7.14 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (7.14 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (7.14 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

GS-441524, predominant metabolite of Remdesivir and superior to Remdesivir against Covid-19, shows comparable efficacy in cell-based models of primary human lung and cat cells infected with coronavirus. GS-441524 could strongly inhibits feline infectious peritonitis virus (FIPV), with an EC₅₀ of 0.78 μM^{[1][2][3]}.

IC₅₀ & Target	EC50: 0.78 μM (FIPV) ^[1] .
In Vitro	The cells appear and grow normally at all concentrations of GS-441524 and fail to uptake the fluorescent dye CellTox Green at 24 h. The cytotoxic concentration-50% (CC50) is therefore >100 μM. The effective concentration-50% (EC ₅₀) of GS-441524 is calculated to be 0.78 μM ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	All 10 treated cats have a rapid response to treatment and lymphocyte levels and rectal temperatures return to pre-infection levels and levels of the two asymptomatic cats. All ten of the once or twice treated cats have remained normal to date (more than eight months post infection). Injections cause a transient "stinging" reaction in some cats within 10 s of compound administration. Localized and transient pain is evidenced by unusual posturing, licking at the injection site and/or vocalizations that last for approximately 30-60 s after injection. Injection reactions are more pronounced in some animals relative to others and reactions are inconsistent from one injection to the next and decrease over time ^[1] . Remdesivi (IV injection) in NHP results in GS-441524 being present in serum at concentrations 1000-fold higher than Remdesivir throughout a 7-day treatment course ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay	To determine the toxicity of GS-441524 to CRFK cells, CRFK cells are treated with 100, 33.3, 11.1, 3.7 or 1.2 μM GS-441524 for 24 h ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration ^[1]	Cats ^[1] The 10 cats that developed disease signs are divided into two groups and treated with either 5 mg/kg (Group A; n=5) or 2 mg/kg (Group B; n=5) GS-441524 SC q24 h starting three days after unequivocal clinical evidence of FIP (days 12-19 post infection). The two cats that do not develop disease signs serve as controls for normal blood lymphocyte counts and rectal temperature ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2021 Nov 5;12(1):6415.
- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.
- Clin Transl Sci. 2021 Nov 10.
- Biomed Pharmacother. 2022 Nov 22;157:114037.
- ACS Omega. 2022 Jun 13;7(25):21385-21396.

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REFERENCES

- [1]. Murphy BG, et al. The nucleoside analog GS-441524 strongly inhibits feline infectious peritonitis (FIP) virus in tissue culture and experimental cat infection studies. Vet Microbiol. 2018 Jun;219:226-233.
- [2]. Katherine Yang, et al. What Do We Know About Remdesivir Drug Interactions? Clin Transl Sci. 2020 May 13;10.1111/cts.12815.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA