

# Product data sheet



MedKoo Cat#: 555735 Name: GS-441524 HCl CAS: 2378280-82-9 (HCl) Chemical Formula: C <sub>12</sub> H <sub>14</sub> ClN <sub>5</sub> O <sub>4</sub> Molecular Weight: 327.73	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

## 1. Product description:

GS-441524 is a potent inhibitor of feline infectious peritonitis (FIP) virus with an EC<sub>50</sub> of 0.78 μM. GS-441524 strongly inhibits feline infectious peritonitis (FIP) virus in tissue culture and experimental cat infection studies. GS-441524 is a molecular precursor to a pharmacologically active nucleoside triphosphate molecule. These analogs act as an alternative substrate and RNA-chain terminator of viral RNA dependent RNA polymerase. GS-441524 was non-toxic in feline cells at concentrations as high as 100 μM and effectively inhibited FIPV replication in cultured CRFK cells and in naturally infected feline peritoneal macrophages at concentrations as low as 1 μM. Note: GS-441524 is an active metabolite of Remdesivir.

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

## 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
To be determined	To be determined	To be determined

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.05 mL	15.26 mL	30.51 mL
5 mM	0.61 mL	3.05 mL	6.10 mL
10 mM	0.31 mL	1.53 mL	3.05 mL
50 mM	0.06 mL	0.31 mL	0.61 mL

## 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

## 6. Recommended literature which reported protocols for in vitro and in vivo study

### In vitro study

- Huang Z, Gong L, Zheng Z, Gao Q, Chen X, Chen Y, Chen X, Xu R, Zheng J, Xu Z, Zhang S, Wang H, Zhang G. GS-441524 inhibits African swine fever virus infection in vitro. *Antiviral Res.* 2021 May 1;191:105081. doi: 10.1016/j.antiviral.2021.105081. Epub ahead of print. PMID: 33945807.
- Murphy BG, Perron M, Murakami E, Bauer K, Park Y, Eckstrand C, Liepnieks M, Pedersen NC. 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. doi: 10.1016/j.vetmic.2018.04.026. Epub 2018 Apr 22. PMID: 29778200; PMCID: PMC7117434.

### In vivo study

- Carlin AF, Beadle JR, Clark AE, Gully KL, Moreira FR, Baric RS, Graham RL, Valiaeva N, Leibel SL, Bray W, McMillan RE, Freshman JE, Garretson AF, McVicar RN, Rana T, Zhang XQ, Murphy JA, Schooley RT, Hostetler KY. 1-O-Octadecyl-2-O-benzyl-sn-glyceryl-3-phospho-GS-441524 (V2043). Evaluation of Oral V2043 in a Mouse Model of SARS-CoV-2 Infection and Synthesis and Antiviral Evaluation of Additional Phospholipid Esters with Enhanced Anti-SARS-CoV-2 Activity. *J Med Chem.*

# Product data sheet



2023 Apr 27;66(8):5802-5819. doi: 10.1021/acs.jmedchem.3c00046. Epub 2023 Apr 11. PMID: 37040439; PMCID: PMC10108740.

2. Pedersen NC, Perron M, Bannasch M, Montgomery E, Murakami E, Liepnieks M, Liu H. Efficacy and safety of the nucleoside analog GS-441524 for treatment of cats with naturally occurring feline infectious peritonitis. *J Feline Med Surg.* 2019 Apr;21(4):271-281. doi: 10.1177/1098612X19825701. Epub 2019 Feb 13. PMID: 30755068; PMCID: PMC6435921.

## 7. Bioactivity

### Biological target:

---

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.

### In vitro activity

---

The antiviral potential of GS-441524 against African swine fever virus (ASFV) was demonstrated in porcine alveolar macrophages (PAMs). GS-441524 exhibited a dose-dependent inhibition of ASFV infection, particularly during the early stages of viral replication. GS-441524 did not elevate the levels of antiviral cytokines or ATP in PAMs. Conversely, an elevated concentration of natural ATP in PAMs resulted in increased ASFV replication, counteracting the inhibitory effects of GS-441524 in a dose-dependent manner.

Reference: *Antiviral Res.* 2021 Jul;191:105081. <https://pubmed.ncbi.nlm.nih.gov/33945807/>

### In vivo activity

---

This study supports the development of GS-441524 (RVn) phospholipid prodrugs as oral antiviral agents for prevention and treatment of SARS-CoV-2 infections. Oral treatment of SARS-CoV-2-infected BALB/c mice with 1-O-octadecyl-2-O-benzyl-sn-glycerol-3-phospho-RVn reduced lung viral load by 1.5 log<sub>10</sub> units versus vehicle at day 2 and to below the limit of detection at day 5.

Reference: *J Med Chem.* 2023 Apr 27;66(8):5802-5819. <https://pubmed.ncbi.nlm.nih.gov/37040439/>

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*