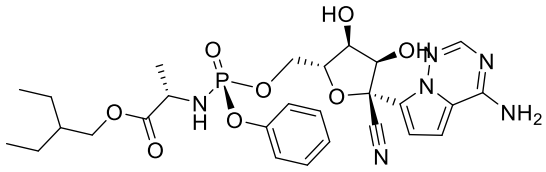
Product data sheet

MedKoo Cat#: 329511 Name: Remdesivir CAS#: 1809249-37-3 (free base) Chemical Formula: $C_{27}H_{35}N_6O_8P$ Exact Mass: 602.2254 Molecular Weight: 602.58	
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:

Remdesivir, also known as GS-5734, is a prodrug form of the antiviral nucleoside analog GS-44152. Upon entry into cells, remdesivir is metabolized into the nucleotide triphosphate GS-441524. Remdesivir inhibits murine hepatitis virus (MHV) with an EC50 of 30 nM, and blocks SARS-CoV and MERS-CoV in HAE cells with EC50s of both 74 nM in HAE cells after treatment for 24 h. GS-5734 inhibits both epidemic and zoonotic coronaviruses. It was developed as a treatment for filovirus infections such as Ebola virus disease and Marburg virus. Remdesivir was approved for treatment of COVID-19. ******* WARNING****** Our product Remdesivir is a Pure chemical in Powder form for laboratory research use only, NOT FOR HUMAN OR PATIENT USE

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
DMSO	100.0	165.95
Ethanol	12.0	20.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.66 mL	8.30 mL	16.60 mL
5 mM	0.33 mL	1.66 mL	3.32 mL
10 mM	0.17 mL	0.83 mL	1.66 mL
50 mM	0.03 mL	0.17 mL	0.33 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

1. Humeniuk R, Mathias A, Kirby BJ, Lutz JD, Cao H, Osinusi A, Babusis D, Porter D, Wei X, Ling J, Reddy YS, German P. Pharmacokinetic, Pharmacodynamic, and Drug-Interaction Profile of Remdesivir, a SARS-CoV-2 Replication Inhibitor. Clin Pharmacokinet. 2021 Mar 30:1–15. doi: 10.1007/s40262-021-00984-5. Epub ahead of print. PMID: 33782830; PMCID: PMC8007387.

In vivo study

1. Humeniuk R, Mathias A, Kirby BJ, Lutz JD, Cao H, Osinusi A, Babusis D, Porter D, Wei X, Ling J, Reddy YS, German P. Pharmacokinetic, Pharmacodynamic, and Drug-Interaction Profile of Remdesivir, a SARS-CoV-2 Replication Inhibitor. Clin Pharmacokinet. 2021 Mar 30:1–15. doi: 10.1007/s40262-021-00984-5. Epub ahead of print. PMID: 33782830; PMCID: PMC8007387.

2. Buckland MS, Galloway JB, Fhogartaigh CN, Meredith L, Provine NM, Bloor S, Ogbe A, Zelek WM, Smielewska A, Yakovleva A, Mann T, Bergamaschi L, Turner L, Mescia F, Toonen EJM, Hackstein CP, Akther HD, Vieira VA, Ceron-Gutierrez L, Periselneris

J, Kiani-Alikhan S, Grigoriadou S, Vaghela D, Lear SE, Török ME, Hamilton WL, Stockton J, Quick J, Nelson P, Hunter M, Coulter TI, Devlin L; CITIID-NIHR COVID-19 BioResource Collaboration; MRC-Toxicology Unit COVID-19 Consortium, Bradley JR, Smith KGC, Ouwehand WH, Estcourt L, Harvala H, Roberts DJ, Wilkinson IB, Screaton N, Loman N, Doffinger R, Lyons PA, Morgan BP, Goodfellow IG, Klenerman P, Lehner PJ, Matheson NJ, Thaventhiran JED. Treatment of COVID-19 with remdesivir in the absence of humoral immunity: a case report. Nat Commun. 2020 Dec 14;11(1):6385. doi: 10.1038/s41467-020-19761-2. PMID: 33318491; PMCID: PMC7736571.

7. Bioactivity

Biological target:

Nucleoside analogue with effective antiviral activity and is highly effective in the control of SARS-CoV-2 (COVID-19) infection in vitro.

In vitro activity

In vitro, Remdesivir (RDV) exhibited antiviral activity against a clinical isolate of SARS-CoV-2 in primary human airway epithelial cells with a half-maximal effective concentration of 9.9 nM and also potently (280 nM) inhibited SARS-CoV-2 replication in Calu-3 human lung cells. In biochemical assays assessing RDV-triphosphate incorporation by the SARS-CoV-2, SARS-CoV, and MERS-CoV viral RNA-dependent RNA polymerase complexes, RDV triphosphate was selectively incorporated over the natural nucleotide substrate adenosine triphosphate and inhibited viral RNA synthesis with a half-maximal inhibitory concentration value of 32 nM for MERS-CoV.

Reference: Clin Pharmacokinet. 2021 Mar 30 : 1–15. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8007387/

In vivo activity

In vivo, Remdesivir (RDV) showed therapeutic efficacy in SARS-CoV-2-infected rhesus monkeys and prophylactic and therapeutic efficacy in MERS-CoV-infected rhesus monkeys. Briefly, 12 h after inoculation with SARS-CoV-2, rhesus monkeys received an RDV 10-mg/kg IV loading dose followed by maintenance doses of RDV 5 mg/kg at 24 h post-inoculation and once daily thereafter for a total of 6 days of treatment. The aim of the loading dose was to rapidly generate high GS-443902 concentrations following the first dose. Treatment with this regimen resulted in a significant reduction in clinical signs of respiratory disease, lung pathology and gross lung lesions, and viral RNA levels compared with vehicle-treated animals.

Reference: Clin Pharmacokinet. 2021 Mar 30 : 1–15. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8007387/

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.