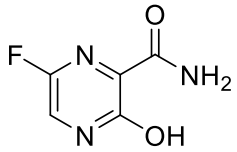
Product data sheet

MedKoo Cat#: 319889 Name: Favipiravir CAS#: 259793-96-9 Chemical Formula: $C_5H_4FN_3O_2$ Exact Mass: 157.028 Molecular Weight: 157.1044	
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:

Favipiravir, also known as Favilavir, T705, or Avigan, is a selective inhibitor of viral RNA-dependent RNA polymerase with activity against many RNA viruses, influenza viruses, West Nile virus, yellow fever virus, foot-and-mouth disease virus as well as other flaviviruses, arenaviruses, bunyaviruses and alphaviruses. Activity against enteroviruses and Rift Valley fever virus has also been demonstrated. The mechanism of its actions is thought to be related to the selective inhibition of viral RNA-dependent RNA polymerase. Favipiravir does not inhibit RNA or DNA synthesis in mammalian cells and is not toxic to them. In 2014, favipiravir was approved in Japan for stockpiling against influenza pandemics.

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	44.18	281.21
Ethanol	1.78	11.33
Water	4.13	26.29

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	6.37 mL	31.83 mL	63.65 mL
5 mM	1.27 mL	6.37 mL	12.73 mL
10 mM	0.64 mL	3.18 mL	6.37 mL
50 mM	0.13 mL	0.64 mL	1.27 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. Xue X, Zhu Y, Yan L, Wong G, Sun P, Zheng X, Xia X. Antiviral efficacy of favipiravir against canine distemper virus infection in vitro. BMC Vet Res. 2019 Sep 2;15(1):316. doi: 10.1186/s12917-019-2057-8. PMID: 31477101; PMCID: PMC6720089.
2. Jochmans D, van Nieuwkoop S, Smits SL, Neyts J, Fouchier RA, van den Hoogen BG. Antiviral Activity of Favipiravir (T-705) against a Broad Range of Paramyxoviruses In Vitro and against Human Metapneumovirus in Hamsters. Antimicrob Agents Chemother. 2016 Jul 22;60(8):4620-9. doi: 10.1128/AAC.00709-16. PMID: 27185803; PMCID: PMC4958190.

In vivo study

1. Matz K, Emanuel J, Callison J, Gardner D, Rosenke R, Mercado-Hernandez R, Williamson BN, Feldmann H, Marzi A. Favipiravir (T-705) Protects IFNAR-/- Mice against Lethal Zika Virus Infection in a Sex-Dependent Manner. Microorganisms. 2021 May 29;9(6):1178. doi: 10.3390/microorganisms9061178. PMID: 34072604.

2. Jacobs S, Wang L, Rosales Rosas AL, Van Berwaer R, Vanderlinden E, Failloux AB, Naesens L, Delang L. Favipiravir Does Not Inhibit Chikungunya Virus Replication in Mosquito Cells and Aedes aegypti Mosquitoes. Microorganisms. 2021 Apr 27;9(5):944. doi: 10.3390/microorganisms9050944. PMID: 33925738; PMCID: PMC8145424.

7. Bioactivity

Biological target:

Favipiravir (T-705) is a viral RNA polymerase inhibitor, it is phosphoribosylated by cellular enzymes to its active form, Favipiravir-ribofuranosyl-5'-triphosphate (RTP).

In vitro activity

This study has extended the spectrum of T-705, demonstrating robust antiviral activity against CDV (canine distemper virus) in vitro. Results in this work indicated that T-705 effectively suppressed CDV-3 and CDV-11 in Vero and DH82 cells. In Vero cells, the IC50 of T-705 against CDV was 25.2 μg/ml for CDV-3 and 7.05 μg/ml for CDV-11. In DH82 cells, the IC50 of T-705 against CDV was 33.54 μg/ml for CDV-3 and 16.97 μg/ml for CDV-11. These findings were comparable to those reported for other RNA viruses, including West Nile virus (IC50: 53 μg/ml), foot-and-mouth disease virus (IC50: 14 μg/ml), Ebolavirus (IC50: 10.5 μg/ml), murine norovirus (IC50: 39 μg/ml) and Zika virus (IC50:17.4 μg/ml).

Reference: BMC Vet Res. 2019; 15: 316. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6720089/

In vivo activity

However, when tested in IFNAR−/− mice, ribavirin did not protect mice from lethal ZIKV challenge, as shown before with male STAT1−/− mice. In contrast, daily administration of 300 mg/kg favipiravir protected the IFNAR−/− mice from lethal ZIKV challenge (Figure 2). This is consistent with results from another flavivirus, yellow fever virus, where favipiravir improved disease outcome in the hamster model. Additionally, favipiravir, but not ribavirin, is an effective treatment against other RNA virus infections, such as CCHFV, for which it has been shown to protect mice and macaques from lethal disease.

Reference: Microorganisms. 2021 May 29;9(6):1178. https://pubmed.ncbi.nlm.nih.gov/34072604/

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.