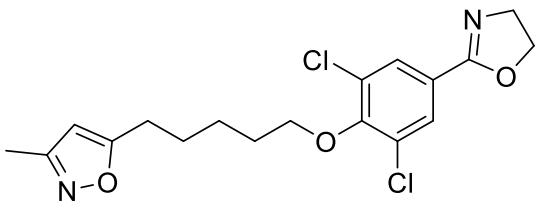
Product data sheet

MedKoo Cat#: 414253 Name: WIN54954 CAS#: 107355-45-3 Chemical Formula: $C_{18}H_{20}Cl_2N_2O_3$ Exact Mass: 382.0851 Molecular Weight: 383.27	
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:
WIN54954 is a broad-spectrum antipicornavirus drug.

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	260.91

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.61 mL	13.05 mL	26.09 mL
5 mM	0.52 mL	2.61 mL	5.22 mL
10 mM	0.26 mL	1.30 mL	2.61 mL
50 mM	0.05 mL	0.26 mL	0.52 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. Woods MG, Diana GD, Rogge MC, Otto MJ, Dutko FJ, McKinlay MA. In vitro and in vivo activities of WIN 54954, a new broad-spectrum antipicornavirus drug. Antimicrob Agents Chemother. 1989 Dec;33(12):2069-74. doi: 10.1128/AAC.33.12.2069. PMID: 2559655; PMCID: PMC172823.
2. Heim A, Pfetzing U, Müller G, Grumbach IM. Antiviral activity of WIN 54954 in coxsackievirus B2 carrier state infected human myocardial fibroblasts. Antiviral Res. 1998 Jan;37(1):47-56. doi: 10.1016/s0166-3542(97)00056-9. PMID: 9497072.

In vivo study

1. Woods MG, Diana GD, Rogge MC, Otto MJ, Dutko FJ, McKinlay MA. In vitro and in vivo activities of WIN 54954, a new broad-spectrum antipicornavirus drug. Antimicrob Agents Chemother. 1989 Dec;33(12):2069-74. doi: 10.1128/AAC.33.12.2069. PMID: 2559655; PMCID: PMC172823.
2. See DM, Tilles JG. Treatment of Coxsackievirus A9 myocarditis in mice with WIN 54954. Antimicrob Agents Chemother. 1992 Feb;36(2):425-8. doi: 10.1128/AAC.36.2.425. PMID: 1318683; PMCID: PMC188451.

7. Bioactivity
Biological target:

WIN 54954 is a broad-spectrum antipicornavirus agent that has effectiveness against human rhinovirus, echovirus 9 and enterovirus infections.

Product data sheet

In vitro activity

WIN 54954 reduced the virus titers of myocardial fibroblast cultures from 3.3×105 PFU/ml (SD 1.4×105) to 2.96×103 PFU/ml (SD 6.0x102) after 4 days of application. The antiproliferative effect of WIN 54954 in myocardial fibroblast cultures was very low (IC50>5 μg/ml) and this confirms the high selectivity of WIN 54954 action. After 16 days of WIN 54954 (0.025–1 μg/ml) application, infectious virus progeny was completely suppressed with the exception of a single culture in the 0.025 μg/ml dose schedule and a single culture in the 0.5 μg/ml dose schedule. A WIN 54954 resistant CVB2 was isolated from the latter culture. The EC90 of this isolate as determined in Vero cell had increased significantly to 0.81 μg/ml compared to 0.197 μg/ml of the stock virus and the EC50 had increased slightly to 0.026 μg/ml compared to 0.018 μg/ml of the stock virus (standard deviations of EC50 and EC <5%).

Reference: Antiviral Res. 1998 Jan;37(1):47-56. https://pubmed.ncbi.nlm.nih.gov/9497072/

In vivo activity

Eight-month-old male Swiss Webster mice were inoculated with 1.5 x 10(4) PFU of CVA9, Boston strain 13. WIN 54954, a broad-spectrum antipicornavirus agent, was administered orally in a dose of 0.25, 2.5, 25, 50, 100, or 200 mg/kg of body weight per day on days 1 to 3 after virus inoculation. Myocardial titers of virus were determined and found to be significantly lower in the four highest dose treatment groups (P less than 0.001 for all groups) compared with controls. Heart weights were also significantly lower compared with controls in these four groups (P less than 0.001 for all groups). When mice received 50 mg of WIN 54954 per kg daily beginning at either 48 or 72 h postinoculation, myocardial titers were once again significantly reduced compared with those of controls (P less than 0.001 for both groups). Neurological toxicity was observed in the 100- and 200-mg/kg/day groups but not in the lower-dose groups. Thus, WIN 54954 effectively reduced myocardial CVA9 replication in a murine model.

Reference: Antimicrob Agents Chemother. 1992 Feb;36(2):425-8. https://pubmed.ncbi.nlm.nih.gov/1318683/