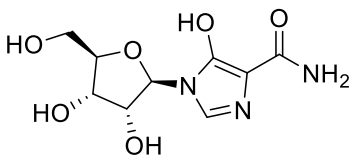
Product data sheet

MedKoo Cat#: 406375 Name: Mizoribine CAS#: 50924-49-7 Chemical Formula: $C_9H_{13}N_3O_6$ Exact Mass: 259.08044 Molecular Weight: 259.22	
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:

Mizoribine (INN, trade name Bredinin) is an immunosuppressive drug. The compound was first observed in Tokyo, Japan, in 1971. It is a natural product, first isolated from the mould Eupenicillium brefeldianum. Mizoribine (MZB) is an imidazole nucleoside that has been used in renal transplantation, and in steroid-resistant nephrotic syndrome, IgA nephropathy, lupus, as well as for adults with rheumatoid arthritis, lupus nephritis and other rheumatic diseases.

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	43.0	165.88
Water	51.0	196.74

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.86 mL	19.29 mL	38.58 mL
5 mM	0.77 mL	3.86 mL	7.72 mL
10 mM	0.39 mL	1.93 mL	3.86 mL
50 mM	0.08 mL	0.39 mL	0.77 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. Horimoto N, Kitamura S, Tsuji K, Makino H. Mizoribine inhibits the proliferation of renal stem/progenitor cells by G1/S arrest during renal regeneration. Acta Med Okayama. 2014;68(1):7-15. doi: 10.18926/AMO/52138. PMID: 24553483.
2. Picard-Jean F, Bougie I, Shuto S, Bisaillon M. The immunosuppressive agent mizoribine monophosphate is an inhibitor of the human RNA capping enzyme. PLoS One. 2013;8(1):e54621. doi: 10.1371/journal.pone.0054621. Epub 2013 Jan 17. PMID: 23349942; PMCID: PMC3547949.

In vivo study

1. Li SF, Gong MJ, Sun YF, Shao JJ, Zhang YG, Chang HY. In Vitro and in Vivo Antiviral Activity of Mizoribine Against Foot-And-Mouth Disease Virus. Molecules. 2019 May 3;24(9):1723. doi: 10.3390/molecules24091723. PMID: 31058822; PMCID: PMC6539406.
2. Doi T, Doi S, Nakashima A, Ueno T, Yokoyama Y, Kohno N, Masaki T. Mizoribine ameliorates renal injury and hypertension along with the attenuation of renal caspase-1 expression in aldosterone-salt-treated rats. PLoS One. 2014 Apr 2;9(4):e93513. doi: 10.1371/journal.pone.0093513. PMID: 24695748; PMCID: PMC3973594.

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7. Bioactivity

Biological target:

Mizoribine (NSC 289637) inhibits HCV RNA replication with IC50 of approximately 100 μM.

In vitro activity

The ECIS data (Fig. 2) showed that the capacitance of the 3 cell types was significantly higher in the groups treated with 1 or 10μg/ml doses of MZR (Mizoribine) compared with the group treated with 0.1μg/ml of MZR and the positive control group ($p<0.05$). For the NRK cells, the group treated with 10μg/ml of MZR exhibited higher capacitance compared with the group treated with 1μg/ml of MZR ($p<0.05$). However, the ECIS data for the UB and rKS56 cells treated with 10μg/ml of MZR were not significantly different from the corresponding data for the groups of each cell type treated with 1μg/ml of MZR. These results suggested that MZR suppressed cell proliferation and that the proliferation-suppressive capacity of MZR is dose-dependent.

Reference: Acta Med Okayama. 2014;68(1):7-15. https://pubmed.ncbi.nlm.nih.gov/24553483/

In vivo activity

The present study demonstrated that immunosuppressant therapy with mizoribine alleviates renal inflammation and cell death accompanied by caspase-1 activation in aldosterone-salt-treated rats. Mizoribine also shows beneficial effects on hypertension, urinary protein excretion, and renal fibrosis. Therefore, mizoribine may be a therapeutic option for salt-sensitive hypertension and renal fibrosis.

Reference: PLoS One. 2014; 9(4): e93513. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3973594/

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.