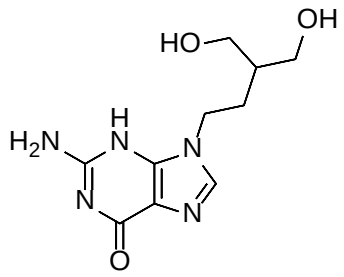
Product data sheet

MedKoo Cat#: 318461 Name: Penciclovir CAS: 39809-25-1 (free base) Chemical Formula: $C_{10}H_{15}N_5O_3$ Exact Mass: 253.1175 Molecular Weight: 253.262	
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:
Penciclovir, also known as BRL-39123, is a guanosine analogue antiviral drug used for the treatment of various herpesvirus infections. It is a nucleoside analogue which exhibits low toxicity and good selectivity. Because penciclovir is absorbed poorly when given orally it is used more as a topical treatment, and is the active ingredient in the cold sore medications Denavir, Vectavir and Fenivir.

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	19.78	78.09
Water	1.5	5.92

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.95 mL	19.74 mL	39.49 mL
5 mM	0.79 mL	3.95 mL	7.90 mL
10 mM	0.39 mL	1.97 mL	3.95 mL
50 mM	0.08 mL	0.39 mL	0.79 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. Hussein IT, Menashy RV, Field HJ. Penciclovir is a potent inhibitor of feline herpesvirus-1 with susceptibility determined at the level of virus-encoded thymidine kinase. Antiviral Res. 2008 Jun;78(3):268-74. doi: 10.1016/j.antiviral.2007.10.015. Epub 2008 Feb 12. PMID: 18325606.
2. Earnshaw DL, Bacon TH, Darlison SJ, Edmonds K, Perkins RM, Vere Hodge RA. Mode of antiviral action of penciclovir in MRC-5 cells infected with herpes simplex virus type 1 (HSV-1), HSV-2, and varicella-zoster virus. Antimicrob Agents Chemother. 1992 Dec;36(12):2747-57. doi: 10.1128/AAC.36.12.2747. PMID: 1336346; PMCID: PMC245539.

In vivo study

1. de la Fuente R, Awan AR, Field HJ. The acyclic nucleoside analogue penciclovir is a potent inhibitor of equine herpesvirus type 1 (EHV-1) in tissue culture and in a murine model. Antiviral Res. 1992 May;18(1):77-89. doi: 10.1016/0166-3542(92)90007-r. PMID: 1329646.

7. Bioactivity
Biological target:

Product data sheet

Penciclovir (VSA 671) is a potent and selective anti-herpesvirus agent with EC50 values of 0.5, 0.8 μg/ml for HSV-1 (HFEM), HSV-2 (MS), respectively.

In vitro activity

The metabolism and mode of action of penciclovir [9-(4-hydroxy-3-hydroxymethylbut-1-yl)guanine; BRL 39123] were studied and compared with those of acyclovir. (S)-Penciclovir-triphosphate inhibited HSV-1 and HSV-2 DNA polymerase competitively with dGTP, the Ki values being 8.5 and 5.8 microM, respectively, whereas for acyclovir-triphosphate, the Ki value was 0.07 microM for the two enzymes. Both compounds had relatively low levels of activity against the cellular DNA polymerase alpha, with Ki values of 175 and 3.8 microM, respectively.

Reference: Antimicrob Agents Chemother. 1992 Dec;36(12):2747-57. https://pubmed.ncbi.nlm.nih.gov/1336346/

In vivo activity

PCV was compared with the phosphonyl derivative, HPMPA in mice infected with EHV-1. Both drugs were shown to be effective in vivo, limiting wild-type virus replication in respiratory tissues, and reducing viraemia. The treated mice also showed less clinical signs and reduced histopathology compared with placebo-treated controls.

Reference: Antiviral Res. 1992 May;18(1):77-89. https://pubmed.ncbi.nlm.nih.gov/1329646/

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.