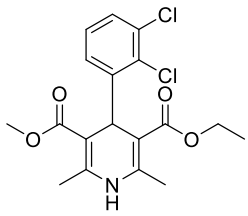
Product data sheet

MedKoo Cat#: 317864 Name: Felodipine CAS#: 72509-76-3 Chemical Formula: $C_{18}H_{19}Cl_2NO_4$ Exact Mass: 383.0691 Molecular Weight: 384.2538	
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:
Felodipine is a calcium channel blocker (calcium antagonist), used to control hypertension. Felodipine prevents calcium from being released within the muscle cells of the small arteries and thereby causes the muscles to relax and the arteries to dilate or expand. Dilation of arteries reduces blood pressure. Felodipine has little or no effect on the muscles of veins or the heart. Felodipine was approved by the FDA in 1991.

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	61.36	159.69
DMSO:PBS (pH 7.2) (1:3)	0.25	0.65
DMF	30.0	78.07
Ethanol	43.47	113.13

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.60 mL	13.01 mL	26.02 mL
5 mM	0.52 mL	2.60 mL	5.20 mL
10 mM	0.26 mL	1.30 mL	2.60 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. Siddiqi FH, Menzies FM, Lopez A, Stamatakou E, Karabiyik C, Ureshino R, Ricketts T, Jimenez-Sanchez M, Esteban MA, Lai L, Tortorella MD, Luo Z, Liu H, Metzakopian E, Fernandes HJR, Bassett A, Karran E, Miller BL, Fleming A, Rubinsztein DC. Felodipine induces autophagy in mouse brains with pharmacokinetics amenable to repurposing. Nat Commun. 2019 Apr 18;10(1):1817. doi: 10.1038/s41467-019-09494-2. Erratum in: Nat Commun. 2019 Jun 4;10(1):2530. PMID: 31000720; PMCID: PMC6472390.
2. Qi J, Zheng JB, Ai WT, Yao XW, Liang L, Cheng G, Shou XL, Sun CF. Felodipine inhibits ox-LDL-induced reactive oxygen species production and inflammation in human umbilical vein endothelial cells. Mol Med Rep. 2017 Oct;16(4):4871-4878. doi: 10.3892/mmr.2017.7181. Epub 2017 Aug 7. PMID: 28791379.

In vivo study

Product data sheet

1. Zhang S, Li H, Tang H, Huo S, Nie B, Qu X, Yue B. Felodipine blocks osteoclast differentiation and ameliorates estrogen-dependent bone loss in mice by modulating p38 signaling pathway. Exp Cell Res. 2020 Feb 15;387(2):111800. doi: 10.1016/j.yexcr.2019.111800. Epub 2019 Dec 23. PMID: 31877305.
2. Tanaka KI, Niino T, Ishihara T, Takafuji A, Takayama T, Kanda Y, Sugizaki T, Tamura F, Kurotsu S, Kawahara M, Mizushima T. Protective and therapeutic effect of felodipine against bleomycin-induced pulmonary fibrosis in mice. Sci Rep. 2017 Jun 13;7(1):3439. doi: 10.1038/s41598-017-03676-y. PMID: 28611390; PMCID: PMC5469778.

7. Bioactivity

Biological target:

Felodipine, a dihydropyridine, is a potent, vasoselective calcium channel antagonist.

In vitro activity

Therefore, to test whether these concentrations were likely to be inducing autophagy, this study examined the effects of low concentrations (50 and 100 nM) of felodipine in cultured primary neurons. Indeed, these concentrations increased the numbers of autolysosomes (suggesting increased autophagic flux) and significantly reduced the percentages of neurons with mutant huntingtin exon 1 aggregates (Fig. 4b, c).

Reference: Nat Commun. 2019; 10: 1817. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6472390/

In vivo activity

Treatment with felodipine significantly downregulated the genes associated with osteoclast differentiation. RNA-sequencing and western blotting suggested that felodipine could inhibit bone resorption by suppressing MAPK pathway phosphorylation. Moreover, micro-CT scanning and histological analysis in an ovariectomy (OVX)-induced bone-loss mouse model indicated that felodipine might be a potent drug for preventing osteoporotic fractures.

Reference: Exp Cell Res. 2020 Feb 15;387(2):111800. https://pubmed.ncbi.nlm.nih.gov/31877305/

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.