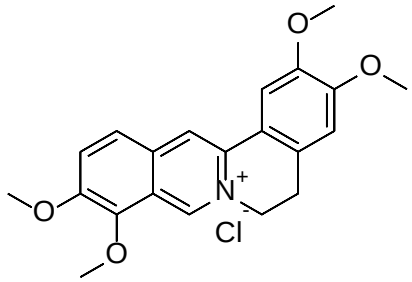
Product data sheet

MedKoo Cat#: 561369 Name: Palmatine chloride CAS: 10605-02-4 (Cl) Chemical Formula: $C_{21}H_{22}ClNO_4$ Molecular Weight: 387.86	
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:

Palmatine chloride is an inhibitor of carbachol-induced Ca^{2+}-activated Cl^- secretion and the carbachol-induced increase of intracellular Ca^{2+} concentration.

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
DMF	30.0	77.35
DMSO	46.33	119.46
DMSO:PBS (pH 7.2) (1:1)	0.50	1.29
Ethanol	5.0	12.89
Water	5.0	12.89

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.58 mL	12.89 mL	25.78 mL
5 mM	0.52 mL	2.58 mL	5.16 mL
10 mM	0.26 mL	1.29 mL	2.58 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. Liu X, Zhang Y, Wu S, Xu M, Shen Y, Yu M, Fan J, Wei S, Xu C, Huang L, Zhao H, Li X, Ye X. Palmatine induces G2/M phase arrest and mitochondrial-associated pathway apoptosis in colon cancer cells by targeting AURKA. Biochem Pharmacol. 2020 May;175:113933. doi: 10.1016/j.bcp.2020.113933. Epub 2020 Mar 26. PMID: 32224138.
2. Jia F, Zou G, Fan J, Yuan Z. Identification of palmatine as an inhibitor of West Nile virus. Arch Virol. 2010 Aug;155(8):1325-9. doi: 10.1007/s00705-010-0702-4. Epub 2010 May 23. PMID: 20496087.

In vivo study

1. Zhang XJ, Yuan ZW, Qu C, Yu XT, Huang T, Chen PV, Su ZR, Dou YX, Wu JZ, Zeng HF, Xie Y, Chen JN. Palmatine ameliorated murine colitis by suppressing tryptophan metabolism and regulating gut microbiota. Pharmacol Res. 2018 Nov;137:34-46. doi: 10.1016/j.phrs.2018.09.010. Epub 2018 Sep 19. PMID: 30243842.
2. Lee WC, Kim JK, Kang JW, Oh WY, Jung JY, Kim YS, Jung HA, Choi JS, Lee SM. Palmatine attenuates D-galactosamine/lipopolysaccharide-induced fulminant hepatic failure in mice. Food Chem Toxicol. 2010 Jan;48(1):222-8. doi: 10.1016/j.fct.2009.10.004. Epub 2009 Oct 8. PMID: 19818826.

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7. Bioactivity

Biological target:

Palmatine chloride is an orally active and irreversible indoleamine 2,3-dioxygenase 1 (IDO-1) inhibitor with IC_{50}s of 3 μM and 157μM against HEK 293-hIDO-1 and rhIDO-1.

In vitro activity

This study investigated the specific inhibition of West Nile virus (WNV) NS2B-NS3 protease and viral propagation by palmatine, a chemical compound from Coptis chinensis Franch. It was demonstrated that palmatine could inhibit WNV NS2B-NS3 protease activity in an uncompetitive manner, with a 50% inhibitory concentration (IC(50)) of 96 microM. Palmatine suppressed WNV without detectable cytotoxicity (a 50% effective concentration [EC(50)] of 3.6 microM and a 50% cytotoxicity concentration [CC(50)] of 1,031 microM). Furthermore, palmatine could also suppress dengue virus and yellow fever virus in a dose-dependent manner.

Reference: Arch Virol. 2010 Aug;155(8):1325-9. https://pubmed.ncbi.nlm.nih.gov/20496087/

In vivo activity

Results showed that Pal (palmatine) treatment significantly reduced DAI scores and ameliorated colonic injury in mice with DSS-induced colitis. Mucosal integrity was improved and cell apoptosis was inhibited. Moreover, gut microbiota analysis showed that mice received Pal-treatment have higher relative abundance of Bacteroidetes and Firmicutes, but reduced amount of Proteobacteria. Moreover, Pal not only suppressed tryptophan catabolism in plasma, but also decreased the protein expression of indoleamine 2,3-dioxygenase 1 (IDO-1, the rate-limiting enzyme of tryptophan catabolism) in colon tissue.

Reference: Pharmacol Res. 2018 Nov;137:34-46. https://pubmed.ncbi.nlm.nih.gov/30243842/

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.