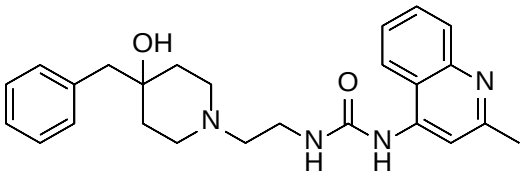
Product data sheet

MedKoo Cat#: 329464 Name: Palosuran CAS: 540769-28-6 Chemical Formula: $C_{25}H_{30}N_4O_2$ Exact Mass: 418.2369 Molecular Weight: 418.541	
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:
Palosuran, also known as ACT-058362, is a Urotensin-II receptor antagonist. Urotensin inhibition with palosuran could be a promising alternative in pulmonary arterial hypertension. Palosuran inhibits binding to primate UT receptors in cell membranes but demonstrates differential activity in intact cells and vascular tissues. Palosuran improves pancreatic and renal function in diabetic rats.

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	10.0	23.89
DMSO	30.0	71.68
DMSO:PBS (pH 7.2) (1:1)	0.5	1.19
Ethanol	0.5	1.19

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.39 mL	11.95 mL	23.89 mL
5 mM	0.48 mL	2.39 mL	4.78 mL
10 mM	0.24 mL	1.19 mL	2.39 mL
50 mM	0.05 mL	0.24 mL	0.48 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. Clozel M, Binkert C, Birker-Robaczewska M, Boukhadra C, Ding SS, Fischli W, Hess P, Mathys B, Morrison K, Müller C, Müller C, Nayler O, Qiu C, Rey M, Scherz MW, Velker J, Weller T, Xi JF, Ziltener P. Pharmacology of the urotensin-II receptor antagonist palosuran (ACT-058362; 1-[2-(4-benzyl-4-hydroxy-piperidin-1-yl)-ethyl]-3-(2-methyl-quinolin-4-yl)-urea sulfate salt): first demonstration of a pathophysiological role of the urotensin System. J Pharmacol Exp Ther. 2004 Oct;311(1):204-12. doi: 10.1124/jpet.104.068320. Epub 2004 May 14. PMID: 15146030.
2. Behm DJ, McAtee JJ, Dodson JW, Neeb MJ, Fries HE, Evans CA, Hernandez RR, Hoffman KD, Harrison SM, Lai JM, Wu C, Aiyar NV, Ohlstein EH, Douglas SA. Palosuran inhibits binding to primate UT receptors in cell membranes but demonstrates differential activity in intact cells and vascular tissues. Br J Pharmacol. 2008 Oct;155(3):374-86. doi: 10.1038/bjp.2008.266. Epub 2008 Jun 30. PMID: 18587423; PMCID: PMC2567886.

In vivo study

Product data sheet

1. Yin L, Li N, Jia W, Wang N, Liang M, Shang J, Qiang G, Du G, Yang X. Urotensin receptor acts as a novel target for ameliorating fasting-induced skeletal muscle atrophy. Pharmacol Res. 2022 Nov;185:106468. doi: 10.1016/j.phrs.2022.106468. Epub 2022 Sep 24. PMID: 36167277.
2. Clozel M, Hess P, Qiu C, Ding SS, Rey M. The urotensin-II receptor antagonist palosuran improves pancreatic and renal function in diabetic rats. J Pharmacol Exp Ther. 2006 Mar;316(3):1115-21. doi: 10.1124/jpet.105.094821. Epub 2005 Nov 2. PMID: 16267137.

7. Bioactivity

Biological target:

Palosuran (ACT-058362) is a potent, selective, and orally active antagonist of urotensin II receptor, with an IC_{50} of 3.6 nM for CHO cell membranes expressing human recombinant receptors.

In vitro activity

ACT-058362 antagonizes the specific binding of (125)I-labeled U-II on natural and recombinant cells carrying the human UT receptor with a high affinity in the low nanomolar range and a competitive mode of antagonism, revealed only with prolonged incubation times. ACT-058362 also inhibits U-II-induced calcium mobilization and mitogen-activated protein kinase phosphorylation.

Reference: J Pharmacol Exp Ther. 2004 Oct;311(1):204-12. https://pubmed.ncbi.nlm.nih.gov/15146030/

In vivo activity

Long-term treatment of streptozotocin-induced diabetic rats with palosuran improved survival, increased insulin, and slowed the increase in glycemia, glycosylated hemoglobin, and serum lipids. Furthermore, palosuran increased renal blood flow and delayed the development of proteinuria and renal damage.

Reference: J Pharmacol Exp Ther. 2006 Mar;316(3):1115-21. https://pubmed.ncbi.nlm.nih.gov/16267137/