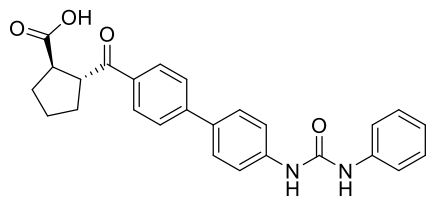
Product data sheet

MedKoo Cat#: 526700 Name: A-922500 CAS#: 959122-11-3 Chemical Formula: $C_{26}H_{24}N_2O_4$ Exact Mass: 428.1736 Molecular Weight: 428.488	
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:
A-922500 is a potent orally active inhibitor of DGAT-1 activity, inhibiting both human and mouse forms of the enzymes with IC50 values of 7 and 24 nM, respectively. Acyl CoA/diacylglycerol acyltransferase (DGAT) 1 is one of two known DGAT enzymes that catalyze the final and only committed step in triglyceride biosynthesis.

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	44.36	103.53
DMSO:PBS (pH 7.2) (1:10)	0.1	0.23
DMF	20.0	46.68
Ethanol	0.2	0.47

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.33 mL	11.67 mL	23.34 mL
5 mM	0.47 mL	2.33 mL	4.67 mL
10 mM	0.23 mL	1.17 mL	2.33 mL
50 mM	0.05 mL	0.23 mL	0.47 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. Huang JS, Guo BB, Wang GH, Zeng LM, Hu YH, Wang T, Wang HY. DGAT1 inhibitors protect pancreatic β-cells from palmitic acid-induced apoptosis. Acta Pharmacol Sin. 2021 Feb;42(2):264-271. doi: 10.1038/s41401-020-0482-7. Epub 2020 Jul 31. PMID: 32737468; PMCID: PMC8027676.
2. Dias SSG, Soares VC, Ferreira AC, Sacramento CQ, Fintelman-Rodrigues N, Temerozo JR, Teixeira L, Nunes da Silva MA, Barreto E, Mattos M, de Freitas CS, Azevedo-Quintanilha IG, Manso PPA, Miranda MD, Siqueira MM, Hottz ED, Pão CRR, Bou-Habib DC, Barreto-Vieira DF, Bozza FA, Souza TML, Bozza PT. Lipid droplets fuel SARS-CoV-2 replication and production of inflammatory mediators. PLoS Pathog. 2020 Dec 16;16(12):e1009127. doi: 10.1371/journal.ppat.1009127. PMID: 33326472; PMCID: PMC7773323.

In vivo study

Product data sheet

1. Tsuda N, Kumadaki S, Higashi C, Ozawa M, Shinozaki M, Kato Y, Hoshida K, Kikuchi S, Nakano Y, Ogawa Y, Furusako S. Intestine-targeted DGAT1 inhibition improves obesity and insulin resistance without skin aberrations in mice. PLoS One. 2014 Nov 18;9(11):e112027. doi: 10.1371/journal.pone.0112027. PMID: 25405858; PMCID: PMC4236014.
2. King AJ, Segreti JA, Larson KJ, Souers AJ, Kym PR, Reilly RM, Collins CA, Voorbach MJ, Zhao G, Mittelstadt SW, Cox BF. In vivo efficacy of acyl CoA: diacylglycerol acyltransferase (DGAT) 1 inhibition in rodent models of postprandial hyperlipidemia. Eur J Pharmacol. 2010 Jul 10;637(1-3):155-61. doi: 10.1016/j.ejphar.2010.03.056. Epub 2010 Apr 10. PMID: 20385122.

7. Bioactivity

Biological target:

A 922500 (DGAT-1 Inhibitor 4a) is a diacylglycerol acyltransferase 1 (DGAT-1) inhibitor with IC50s of 9 and 22 nM against human and mouse DGAT-1, respectively.

In vitro activity

As shown by the representative images (Fig 2A) and quantification (Fig 2B and 2C), treatment with A922500 inhibited the LD formation triggered by SARS-CoV-2 infection in A549 human epithelial cells and in primary human monocytes in a dose dependent manner, with 50% effective concentration (EC50) value of 0.108 μM for A549 cells and 0.711 μM for human monocytes. To gain insights on the functions of LDs in SARS-CoV-2 infection, LD biogenesis was inhibited by A922500, a DGAT-1 inhibitor. Treatment with A922500 significantly reduced the viral load in human primary monocytes in a dose dependent way (Fig 3A), suggesting a role for DGAT-1 and LD in SARS-CoV-2 replication.

Reference: PLoS Pathog. 2020 Dec; 16(12): e1009127. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7773323/

In vivo activity

The effect of DGAT-1 inhibitor A-922500 (0.03, 0.3 and 3 mg/kg) on postprandial hyperlipidemia in mice, assessed 2 h after an oral corn oil bolus, is shown in Fig. 5. Consistent with the findings in the time-course studies described above, serum triglyceride concentrations significantly increased 2 h after corn oil administration in vehicle pretreated C57BL/6 (2.0-fold), *ob/ob* (2.5-fold), apoE$^{-/-}$ (1.8-fold) and CD-1 (3.5-fold) mice. DGAT-1 inhibition produced dose-dependent reductions in post corn oil serum triglyceride concentrations in all mice. The apoE$^{-/-}$ mice appeared most sensitive to DGAT-1 inhibition as A-922500 administered at 0.03 mg/kg significantly attenuated the postprandial triglyceride response by 79%, whereas this dose had no statistically significant effect on the response of serum triglyceride concentrations to corn oil in C57BL/6, *ob/ob* or CD-1 mice. A-922500 dosed at 0.3 mg/kg significantly inhibited the postprandial serum triglyceride response to corn oil in C57BL/6 (99%), *ob/ob* (85%), apoE$^{-/-}$ (116%) and CD-1 (90%) mice, and when dosed at 3 mg/kg essentially abolished the postprandial hyperlipidemia induced by corn oil in C57BL/6 (92%), *ob/ob* (107%), apoE$^{-/-}$ (101%) and CD-1 (103%) mice.

Reference: Eur J Pharmacol. 2010 Jul 10;637(1-3):155-61. https://pubmed.ncbi.nlm.nih.gov/20385122/

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.