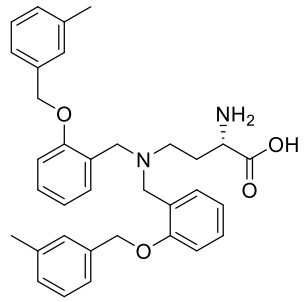
Product data sheet

MedKoo Cat#: 563923 Name: V-9302 CAS#: 1855871-76-9 Chemical Formula: $C_{34}H_{38}N_2O_4$ Exact Mass: 538.2832 Molecular Weight: 538.69	
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:
V-9302 is a competitive antagonist of transmembrane glutamine flux (ASCT2 inhibitor), selectively and potently targeting the amino acid transporter ASCT2.

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	85.0	157.79
DMSO:PBS (pH 7.2) (1:2)	0.33	0.61
DMF	25.0	46.41
Ethanol	60.0	111.38
Water	50.5	93.75

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.86 mL	9.28 mL	18.56 mL
5 mM	0.37 mL	1.86 mL	3.71 mL
10 mM	0.19 mL	0.93 mL	1.86 mL
50 mM	0.04 mL	0.19 mL	0.37 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. Park HY, Kim MJ, Kim YJ, Lee S, Jin J, Lee S, Choi YK, Park KG. V-9302 inhibits proliferation and migration of VSMCs, and reduces neointima formation in mice after carotid artery ligation. Biochem Biophys Res Commun. 2021 Jun 30;560:45-51. doi: 10.1016/j.bbrc.2021.04.079. Epub 2021 May 6. PMID: 33965788.
2. Schulte ML, Fu A, Zhao P, Li J, Geng L, Smith ST, Kondo J, Coffey RJ, Johnson MO, Rathmell JC, Sharick JT, Skala MC, Smith JA, Berlin J, Washington MK, Nickels ML, Manning HC. Pharmacological blockade of ASCT2-dependent glutamine transport leads to antitumor efficacy in preclinical models. Nat Med. 2018 Feb;24(2):194-202. doi: 10.1038/nm.4464. Epub 2018 Jan 15. PMID: 29334372; PMCID: PMC5803339.

In vivo study

1. Edwards DN, Ngwa VM, Raybuck AL, Wang S, Hwang Y, Kim LC, Cho SH, Paik Y, Wang Q, Zhang S, Manning HC, Rathmell JC, Cook RS, Boothby MR, Chen J. Selective glutamine metabolism inhibition in tumor cells improves antitumor T lymphocyte

activity in triple-negative breast cancer. J Clin Invest. 2021 Feb 15;131(4):e140100. doi: 10.1172/JCI140100. PMID: 33320840; PMCID: PMC7880417.
2. Schulte ML, Fu A, Zhao P, Li J, Geng L, Smith ST, Kondo J, Coffey RJ, Johnson MO, Rathmell JC, Sharick JT, Skala MC, Smith JA, Berlin J, Washington MK, Nickels ML, Manning HC. Pharmacological blockade of ASCT2-dependent glutamine transport leads to antitumor efficacy in preclinical models. Nat Med. 2018 Feb;24(2):194-202. doi: 10.1038/nm.4464. Epub 2018 Jan 15. PMID: 29334372; PMCID: PMC5803339.

7. Bioactivity

Biological target:

V-9302 selectively and potently targets the amino acid transporter ASCT2 (SLC1A5) with IC50=9.6 μM) in HEK-293 cells.

In vitro activity

In the primary screen, this study observed that V-9302 exposure reduced in vitro viability by at least 20% in more than half of the cell lines screened, with sensitivity to V-9302 exposure not obviously linked to select mutational status (Extended Data Fig. 3). Follow-up screening was carried out in a subset of colorectal cancer (CRC) cell lines that exhibited variable sensitivities to V-9302 in the primary screen. Using three independent assays lacking ATP-dependency, this study confirmed that V-9302 exposure led to reduced cellular viability and increased cell death (Extended Data Fig. 4).

Reference: Nat Med. 2018 Feb; 24(2): 194–202. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5803339/

In vivo activity

To test the impact of glutamine uptake inhibition with V-9302, orthotopic E0771 tumors grown in immune-competent C57BL/6 female mice were treated daily with V-9302 (50 mg/kg) or vehicle beginning when tumors reached 100 mm^3, equivalent to 11 days after tumor cell inoculation. Tumors treated with V-9302 displayed markedly reduced tumor growth (Figure 5A), resulting in decreased tumor weight upon collection on day 16, after only 5 days of treatment (Figure 5B). While V-9302 had only a marginal impact on $Ki67^+$ cell proliferation, there was a more significant (3-fold) increase in apoptosis, as measured by cleaved caspase-3 (Figure 5C), in agreement with the increased cell death seen upon genetic GLS loss in E0771 tumors.

Reference: J Clin Invest. 2021 Feb 15; 131(4): e140100. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7880417/