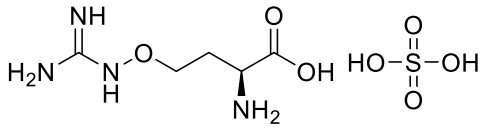
Product data sheet

MedKoo Cat#: 573631 Name: Canavanine sulfate CAS#: 2219-31-0 Chemical Formula: $C_5H_{14}N_4O_7S$ Exact Mass: 274.0583 Molecular Weight: 274.25	
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:
Canavanine sulfate is a biochemical with antimutagenic activity. This product has been shown to potentiate the cytotoxicity of doxorubicin and cisplatin in arginine deprived human cancer cells.

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	50	182.31

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.65 mL	18.23 mL	36.46 mL
5 mM	0.73 mL	3.65 mL	7.29 mL
10 mM	0.36 mL	1.82 mL	3.65 mL
50 mM	0.07 mL	0.36 mL	0.73 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. Nurcahyanti AD, Wink M. Cytotoxic potentiation of vinblastine and paclitaxel by L-canavanine in human cervical cancer and hepatocellular carcinoma cells. Phytomedicine. 2015 Dec 15;22(14):1232-7. doi: 10.1016/j.phymed.2015.10.007. Epub 2015 Oct 30. PMID: 26655405.

In vivo study

1. Brown DL. Canavanine-induced longevity in mice may require diets with greater than 15.7% protein. Nutr Metab (Lond). 2005 Feb 25;2(1):7. doi: 10.1186/1743-7075-2-7. PMID: 15733319; PMCID: PMC554090.

2. Teale DM, Atkinson AM. L-canavanine restores blood pressure in a rat model of endotoxic shock. Eur J Pharmacol. 1994 Dec 12;271(1):87-92. doi: 10.1016/0014-2999(94)90268-2. PMID: 7535234.

7. Bioactivity
Biological target:

L-Canavanine sulfate is a selective inhibitor of inducible NO synthase.

In vitro activity

Product data sheet

L-Canavanine sulfate (L-CAV) causes only a limited degree of cytotoxicity in HeLa, Hep G2, and SK-HEP-1 cells when given alone in arginine-rich media with IC50 values ranging from 5 to 10 mM. In HaCaT keratinocyte cell line, IC50 of L-Canavanine sulfate exceeds the concentration of 10 mM, indicating low cytotoxicity in normal cells in vitro. In arginine-free media, IC50 of L-Canavanine sulfate in HeLa, Hep G2, and SK-HEP-1 cells are 0.21±0.04; 0.64±0.16; and 1.18±0.14 mM, respectively. L-Canavanine sulfate, which is hardly toxic alone, potentiates the cytotoxicity of vinblastine (VIN) and paclitaxel (PTX) in HeLa and hepatocellular carcinoma cells.

Reference: Phytomedicine. 2015 Dec 15;22(14):1232-7. https://linkinghub.elsevier.com/retrieve/pii/S0944-7113(15)00319-0

In vivo activity

In order to determine if this effect also obtains at more moderate dietary protein concentrations, 30 female BALB/c mice were fed a basal diet with 14% protein (15.7% dry matter basis) and another 30 were fed the same diet plus 1% canavanine. Neither mean (Control 873.2 d, Canavanine 870.0 d; SEM = 34.2 d; P = 0.949 from ANOVA) nor median (Control 902 d, Canavanine 884.5 d; P = 0.9058 from Mann-Whitney) lifespans differed between groups.Although mean antinuclear antibody (ANA) titers did not differ between control and canavanine-treated mice at 833 days of age (19.84 vs 20.39 respectively; SEM = 2.64; P = 0.889 from ANOVA), one canavanine-treated mouse displayed an outlying ANA value of 50 (next lower value = 30) denoting possible early sign of incipient autoimmune disease in that individual. There may be an interaction between dietary protein level and canavanine with respect to lifespan in mice.

Reference: Nutr Metab (Lond). 2005 Feb 25;2(1):7. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/15733319/