

Product data sheet



MedKoo Cat#: 463026 Name: Procysteine CAS: 19771-63-2 Chemical Formula: C ₄ H ₅ NO ₃ S Exact Mass: 146.999 Molecular Weight: 147.148	
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:

Procysteine is a prodrug form of cysteine that is metabolized to cysteine intracellularly and has antioxidant activity. It reduces TNF- α -induced increases in the expression of IL-6 and chemokine ligand 2 in ARPE-19 human retinal pigment epithelial cells when used at a concentration of 0.5 mM.³ Procysteine also increases liver glutathione levels in fasted, but not fed, mice.¹ It reduces the production of reactive oxygen species in bronchoalveolar lavage fluid and decreases plasma extravasation in the lungs, as well as reverses decreases in the levels of hypoxia-inducible factor in a mouse model of allergic asthma when administered at doses of 80 and 160 mg/kg.

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	203.88
DMSO	140.0	951.42
PBS (pH 7.2)	5.0	33.98

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	6.80 mL	33.98 mL	67.96 mL
5 mM	1.36 mL	6.80 mL	13.59 mL
10 mM	0.68 mL	3.40 mL	6.80 mL
50 mM	0.14 mL	0.68 mL	1.36 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. Lederman MM, Georges D, Dando S, Schmelzer R, Averill L, Goldberg D. L-2-oxothiazolidine-4-carboxylic acid (procysteine) inhibits expression of the human immunodeficiency virus and expression of the interleukin-2 receptor alpha chain. *J Acquir Immune Defic Syndr Hum Retrovirol.* 1995 Feb 1;8(2):107-15. PMID: 7834394.

In vivo study

1. Saito K, Kimura S, Saga T, Misonoo Y, Yoshizawa S, Akasaka Y, Ishii T, Kuwano K, Yamaguchi K, Tateda K. Protective effect of procysteine on Acinetobacter pneumonia in hyperoxic conditions. *J Antimicrob Chemother.* 2013 Oct;68(10):2305-10. doi: 10.1093/jac/dkt192. Epub 2013 May 16. PMID: 23681269.

2. Otis JS, Guidot DM. Procysteine stimulates expression of key anabolic factors and reduces plantaris atrophy in alcohol-fed rats. *Alcohol Clin Exp Res.* 2009 Aug;33(8):1450-9. doi: 10.1111/j.1530-0277.2009.00975.x. Epub 2009 May 4. PMID: 19426167; PMCID: PMC2723178.

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7. Bioactivity

Biological target:

Procysteine, an antioxidant, is a proagent of cysteine that is inert until metabolized to cysteine intracellularly, thus stimulating glutathione synthesis.

In vitro activity

In transient transfection assays, Procysteine inhibited gene expression controlled by the HIV-1 promoter in activated Jurkat cells but not in resting Jurkat cells. Gel-shift assays showed that Procysteine inhibited NF-kappa B DNA binding activity in nuclear extracts. Thus, Procysteine inhibits HIV expression, HIV promoter activity, and NF-kappa B binding activity in vitro.

Reference: J Acquir Immune Defic Syndr Hum Retrovirol. 1995 Feb 1;8(2):107-15. <https://pubmed.ncbi.nlm.nih.gov/7834394/>

In vivo activity

This study's goals were (i) to minimize the degree of oxidant stress and attenuate atrophy by supplementing the diets of alcohol-fed rats with the glutathione precursor, procysteine, and (ii) to identify the roles of IL-6 family members in alcoholic myopathy. Procysteine treatment attenuated plantaris atrophy, restored glutathione levels, and increased catalase, Cu/Zn-SOD1, and Mn-SOD2 mRNA expression, but did not reduce other markers of oxidant stress or levels of these catabolic factors. Instead, procysteine stimulated gene expression of anabolic factors such as insulin-like growth factor-1, ciliary neurotrophic factor, and cardiotrophin-1. Procysteine significantly attenuated, but did not completely abrogate, alcohol-induced oxidant stress or catabolic factors.

Reference: Alcohol Clin Exp Res. 2009 Aug;33(8):1450-9. <https://pubmed.ncbi.nlm.nih.gov/19426167/>

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.