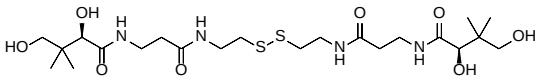
Product data sheet

MedKoo Cat#: 598493 Name: Pantethine CAS: 16816-67-4 Chemical Formula: $C_{22}H_{42}N_4O_8S_2$ Exact Mass: 554.2444 Molecular Weight: 554.718	
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:
Pantethine is a derivative of vitamin B5.

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	100.0	180.27
Ethanol	100.0	180.27
Water	100.0	180.27

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.80 mL	9.01 mL	18.03 mL
5 mM	0.36 mL	1.80 mL	3.61 mL
10 mM	0.18 mL	0.90 mL	1.80 mL
50 mM	0.04 mL	0.18 mL	0.36 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. Abou-Hamdan M, Saleh R, Mani S, Dournaud P, Metifiot M, Blondot ML, Andreola ML, Abdel-Sater F, De Reggi M, Gressens P, Laforge M. Potential antiviral effects of pantethine against SARS-CoV-2. Sci Rep. 2023 Feb 8;13(1):2237. doi: 10.1038/s41598-023-29245-0. PMID: 36754974; PMCID: PMC9906591.
2. van Gijsel-Bonnello M, Baranger K, Benech P, Rivera S, Khrestchatisky M, de Reggi M, Gharib B. Metabolic changes and inflammation in cultured astrocytes from the 5xFAD mouse model of Alzheimer's disease: Alleviation by pantethine. PLoS One. 2017 Apr 14;12(4):e0175369. doi: 10.1371/journal.pone.0175369. Erratum in: PLoS One. 2018 Mar 14;13(3):e0194586. PMID: 28410378; PMCID: PMC5391924.

In vivo study

1. Baranger K, van Gijsel-Bonnello M, Stephan D, Carpentier W, Rivera S, Khrestchatisky M, Gharib B, De Reggi M, Benech P. Long-Term Pantethine Treatment Counteracts Pathologic Gene Dysregulation and Decreases Alzheimer's Disease Pathogenesis in a Transgenic Mouse Model. Neurotherapeutics. 2019 Oct;16(4):1237-1254. doi: 10.1007/s13311-019-00754-z. PMID: 31267473; PMCID: PMC6985318.
2. Penet MF, Krishnamachary B, Wildes F, Mironchik Y, Mezzanzanica D, Podo F, de Reggi M, Gharib B, Bhujwalla ZM. Effect of Pantethine on Ovarian Tumor Progression and Choline Metabolism. Front Oncol. 2016 Nov 16;6:244. doi: 10.3389/fonc.2016.00244. PMID: 27900284; PMCID: PMC5110532.

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7. Bioactivity

Biological target:

Pantethine is a dimeric form of pantothenic acid, is an intermediate in the production of Coenzyme A, is available as a dietary supplement, and is used to treat acne and improve the blood-cholesterol profile.

In vitro activity

Here, this study explored the potential antiviral effects of pantethine in two in vitro experimental models of SARS-CoV-2 infection, in Vero E6 cells and in Calu-3a cells. Pantethine reduced the infection of cells by SARS-CoV-2 in both preinfection and postinfection treatment regimens. Accordingly, cellular expression of the viral spike and nucleocapsid proteins was substantially reduced, and we observed a significant reduction in viral copy numbers in the supernatant of cells treated with pantethine. In addition, pantethine inhibited the infection-induced increase in TMPRSS2 and HECT E3 ligase expression in infected cells as well as the increase in antiviral interferon-beta response and inflammatory gene expression in Calu-3a cells.

Reference: Sci Rep. 2023 Feb 8;13(1):2237. https://pubmed.ncbi.nlm.nih.gov/36754974/

In vivo activity

These properties of pantethine prompted the study to investigate its potential benefits in vivo in the 5XFAD (Tg) mouse model of Alzheimer's disease (AD). This study observed that long-term pantethine treatment significantly reduced glial reactivity and Aβ deposition, and abrogated behavioral alteration in Tg mice. Moreover, the transcriptomic profiles revealed that after pantethine treatment, the expression of genes differentially expressed in Tg mice, and in particular those known to be related to AD, were significantly alleviated.

Reference: Neurotherapeutics. 2019 Oct;16(4):1237-1254. https://pubmed.ncbi.nlm.nih.gov/31267473/

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.