

Product data sheet



MedKoo Cat#: 540292 Name: S-Methylcysteine CAS#: 1187-84-4 Chemical Formula: C ₄ H ₉ NO ₂ S Exact Mass: 135.0354 Molecular Weight: 135.18		
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:

S-Methylcysteine is an antioxidant found in Brassicaceae family plants. It decreases oxidative stress and inhibits oil drop formation in white pre-adipose tissue.

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
Water	30	221.93

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	7.40 mL	36.99 mL	73.98 mL
5 mM	1.48 mL	7.40 mL	14.80 mL
10 mM	0.74 mL	3.70 mL	7.40 mL
50 mM	0.15 mL	0.74 mL	1.48 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. Pancetti F, Oyarce M, Aranda M, Parodi J, Aguayo LG, Morales B, Westphal G, Müller M, Hallier E, Zeise ML. S-methylcysteine may be a causal factor in monohalomethane neurotoxicity. *Neurotoxicology*. 2004 Sep;25(5):817-23. doi: 10.1016/j.neuro.2004.01.008. PMID: 15288512.

In vivo study

1. Elmahallawy EK, Fehaid A, El-Shewehy DMM, Ramez AM, Alkhaldi AAM, Mady R, Nasr NE, Arafat N, Hassanen EAA, Alsharif KF, Abdo W. S-Methylcysteine Ameliorates the Intestinal Damage Induced by Eimeria tenella Infection via Targeting Oxidative Stress and Inflammatory Modulators. *Front Vet Sci*. 2022 Jan 5;8:754991. doi: 10.3389/fvets.2021.754991. PMID: 35071376; PMCID: PMC8767015.
2. Thomas S, Senthikumar GP, Sivaraman K, Bobby Z, Paneerselvam S, Harichandrakumar KT. Effect of s-methyl-L-cysteine on oxidative stress, inflammation and insulin resistance in male wistar rats fed with high fructose diet. *Iran J Med Sci*. 2015 Jan;40(1):45-50. PMID: 25650289; PMCID: PMC4300480.

7. Bioactivity

Biological target:

S-methylcysteine is a natural product that acts as a substrate in the catalytic antioxidant system mediated by methionine sulfoxide reductase A (MSRA), with antioxidative, neuroprotective, and anti-obesity activities.

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In vitro activity

High S-methylcysteine concentrations reduced synaptic responses in rat hippocampal slices, that were partially reversible over time. In organotypic cultures, S-methylcysteine compromised membrane integrity at higher concentrations, while lower concentrations increased population spike amplitudes and neuronal activity without membrane damage. In dissociated neurons, S-methylcysteine acted as a competitive antagonist at GABA(A) receptors, reducing GABA-induced currents.

Reference: Neurotoxicology. 2004 Sep;25(5):817-23. <https://pubmed.ncbi.nlm.nih.gov/15288512/>

In vivo activity

Oral treatment of S-methylcysteine is effective in improving insulin resistance while attenuating metabolic syndrome, inflammation, and oxidative stress in male rats fed with fructose rich diet. Oral administration of S-methylcysteine for 60 days resulted in significant attenuation of plasma glucose, insulin, tumor necrosis factor-alpha, insulin resistance and improved antioxidant enzyme activities.

Reference: Iran J Med Sci. 2015 Jan;40(1):45-50. <https://pubmed.ncbi.nlm.nih.gov/25650289/>

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.