

Product data sheet



MedKoo Cat#: 562207 Name: Ectoine CAS#: 96702-03-3 Chemical Formula: C ₆ H ₁₀ N ₂ O ₂ Exact Mass: 142.0742 Molecular Weight: 142.15	
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:

Ectoine is an inhibitor of protein misfolding. It acts by significantly down-regulating Syp, Mapk3 and Tnfa and up-regulating Vegf in rat's hippocampus, prohibiting insulin amyloid formation in vitro.

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
PBS (pH 7.2)	10.0	70.35
Water	139.0	977.84

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	7.03 mL	35.17 mL	70.35 mL
5 mM	1.41 mL	7.03 mL	14.07 mL
10 mM	0.70 mL	3.52 mL	7.03 mL
50 mM	0.14 mL	0.70 mL	1.41 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

- Hseu YC, Chen XZ, Vudhya Gowrisankar Y, Yen HR, Chuang JY, Yang HL. The Skin-Whitening Effects of Ectoine via the Suppression of α -MSH-Stimulated Melanogenesis and the Activation of Antioxidant Nrf2 Pathways in UVA-Irradiated Keratinocytes. *Antioxidants* (Basel). 2020 Jan 10;9(1):63. doi: 10.3390/antiox9010063. PMID: 31936771; PMCID: PMC7022695.
- Schröter MA, Meyer S, Hahn MB, Solomun T, Sturm H, Kunte HJ. Ectoine protects DNA from damage by ionizing radiation. *Sci Rep*. 2017 Nov 10;7(1):15272. doi: 10.1038/s41598-017-15512-4. PMID: 29127339; PMCID: PMC5681641.

In vivo study

- Refaat R, Sarhan D, Kotb M, El-Abd E, El-Bassiouni E. Post-irradiation protective effects of ectoine on brain and testicles in male mice. *Pharmacol Rep*. 2018 Apr;70(2):304-308. doi: 10.1016/j.pharep.2017.10.002. Epub 2017 Oct 4. PMID: 29477038.

7. Bioactivity

Biological target:

Ectoine serves as an osmoregulatory compatible solute, increasing the hydration of the skin surface and stabilizing lipid layers.

In vitro activity

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MTT data indicated that when compared to the untreated control cells, Ectoine pre-treated (0.5–1.5 μM) and 3 J/cm^2 UVA exposed HaCaT cells were unable to show a significant decrease in cell viability (Figure 1B). Further, Ectoine pretreatment attenuated the UVA (3 J/cm^2)-induced cell death in a dose-dependent manner (Figure 1B).

Reference: Antioxidants (Basel). 2020 Jan; 9(1): 63. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7022695/>

In vivo activity

IL-1 β , IL-6, IL-10, PGE2, and MDA are significantly elevated in the CNS and testes of x-irradiated rat groups when compared with controls. IL-1 β , IL-6, IL-10, and PGE2 significantly elevated at one week than one day while MDA significantly decreased. A significant decrease in the concentration of GSH and in the GSH/GSSG ratios coupled with an opposite effect on GSSG was noted. Ectoine treatment significantly ameliorated the biochemical effects induced by whole body x-irradiation.

Reference: Pharmacol Rep. 2018 Apr;70(2):304-308. <https://pubmed.ncbi.nlm.nih.gov/29477038/>

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.