

# Product data sheet



MedKoo Cat#: 463782 Name: L-AZC CAS: 2133-34-8 Chemical Formula: C <sub>4</sub> H <sub>7</sub> NO <sub>2</sub> Exact Mass: 101.0477 Molecular Weight: 101.105	
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:

L-Azetidine-2-carboxylic acid is a non-proteinogenic amino acid derivative of L-proline that has been found in *C. majalis* and has diverse biological activities. It is toxic to a variety of bacteria, but the bacteria *E. agglomerans* and *E. amnigenus* metabolize it for use as a source of nitrogen. L-Azetidine-2-carboxylic acid induces misfolding of proteins when incorporated into the nascent polypeptide chain. It destabilizes the collagen triple helix and reduces the extracellular localization of collagen. L-Azetidine-2-carboxylic acid inhibits growth of type IV collagen-producing 450 murine mammary cancer cells in vitro but is inactive in a 450.1 murine model of mammary cancer when administered at doses ranging from 12.5 to 200 mg/kg twice per day and induces liver toxicity at the highest dose. It is teratogenic to, and disrupts skeletal development in, hamster fetuses when administered to pregnant hamsters at a dose of 300 mg/kg on gestational day 11.

## 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)	1.0	9.89
Water	100.0	989.07

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	9.89 mL	49.46 mL	98.91 mL
5 mM	1.98 mL	9.89 mL	19.78 mL
10 mM	0.99 mL	4.95 mL	9.89 mL
50 mM	0.20 mL	0.99 mL	1.98 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

- Piper JA, Jansen MI, Thomas Broome S, Rodgers KJ, Musumeci G, Castorina A. Pro-Inflammatory and Pro-Apoptotic Effects of the Non-Protein Amino Acid L-Azetidine-2-Carboxylic Acid in BV2 Microglial Cells. *Curr Issues Mol Biol.* 2022 Sep 28;44(10):4500-4516. doi: 10.3390/cimb44100308. PMID: 36286023; PMCID: PMC9600089.
- Han L, Zhao W, Li A, Zhou B, Zhang J, Wu W. Antifungal activity of l-azetidine-2-carboxylic acid isolated from *Disporopsis aspera* rhizomes against *Podosphaera xanthii*. *Pest Manag Sci.* 2022 May;78(5):1946-1952. doi: 10.1002/ps.6812. Epub 2022 Feb 10. PMID: 35085420.

### In vivo study

- Klohs WD, Steinkampf RW, Wicha MS, Mertus AE, Tunac JB, Leopold WR. Collagen-production inhibitors evaluated as antitumor agents. *J Natl Cancer Inst.* 1985 Aug;75(2):353-9. PMID: 3860688.

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2. Joneja MG. Teratogenic effects of proline analogue L-azetidine-2-carboxylic acid in hamster fetuses. *Teratology*. 1981 Jun;23(3):365-72. doi: 10.1002/tera.1420230311. PMID: 7256659.

## 7. Bioactivity

Biological target:

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L-Azetidine-2-carboxylic acid is an endogenous metabolite.

### In vitro activity

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AZE (L-Azetidine-2-carboxylic acid) (at concentrations  $\geq 1000 \mu\text{M}$ ) significantly reduced cell viability, increased BAX/Bcl2 ratio and caused cell death. Collectively, these data indicate that AZE-induced toxicity is associated with increased pro-inflammatory activity and reduced survival in BV2 microglia.

Reference: *Curr Issues Mol Biol*. 2022 Sep 28;44(10):4500-4516. <https://pubmed.ncbi.nlm.nih.gov/36286023/>

### In vivo activity

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The teratogenic effects of L-azetidine-2-carboxylic acid (LACA) were evaluated in hamsters. Subcutaneous hemorrhage and cleft palate were the most frequently occurring externally visible defects. Skeletal anomalies such as retarded ossification, synchronous vertebral ossification and shortening of bones were found in a high percentage of LACA-treated fetuses. The major teratological effect of LACA appeared to be the retardation of skeletal development.

Reference: *Teratology*. 1981 Jun;23(3):365-72. <https://pubmed.ncbi.nlm.nih.gov/7256659/>

*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.*