

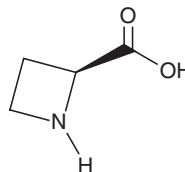
# PRODUCT INFORMATION



## L-Azetidine-2-carboxylic Acid

Item No. 33189

**CAS Registry No.:** 2133-34-8  
**Formal Name:** (2S)-2-azetidinecarboxylic acid  
**Synonym:** (S)-(-)-Azetidine-2-carboxylic Acid  
**MF:** C<sub>4</sub>H<sub>7</sub>NO<sub>2</sub>  
**FW:** 101.1  
**Purity:** ≥95%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years  
**Item Origin:** Synthetic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

L-Azetidine-2-carboxylic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the L-azetidine-2-carboxylic acid in the solvent of choice, which should be purged with an inert gas. L-Azetidine-2-carboxylic acid is slightly soluble in dimethyl formamide.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of L-azetidine-2-carboxylic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of L-azetidine-2-carboxylic acid in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### 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.<sup>1-4</sup> 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.<sup>1</sup> It destabilizes the collagen triple helix and reduces the extracellular localization of collagen.<sup>3</sup> L-Azetidine-2-carboxylic acid inhibits growth of type IV collagen-producing 450.1 murine mammary cancer cells *in vitro* (IC<sub>50</sub> = 7.6 µg/ml) 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.<sup>2</sup> 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.<sup>4</sup>

### References

1. Bach, T.M.H. and Takagi, H. Properties, metabolisms, and applications of L-proline analogues. *Appl. Microbiol. Biotechnol.* **97(15)**, 6623-6634 (2013).
2. Klohs, W.D., Steinkampf, R.W., Wicha, M.S., *et al.* Collagen-production inhibitors evaluated as antitumor agents. *J. Natl. Cancer Inst.* **75(2)**, 353-359 (1985).
3. Zagari, A., Némethy, G., and Scheraga, H.A. The effect of the L-azetidine-2-carboxylic acid residue on protein conformation. I. Conformations of the residue and of dipeptides. *Biopolymers* **30(9-10)**, 951-959 (1990).
4. Joneja, M.G. Teratogenic effects of proline analogue L-azetidine-2-carboxylic acid in hamster fetuses. *Teratology* **23(3)**, 365-372 (1981).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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