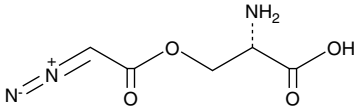
Product Information

Azaserine

Item No. 14834

CAS Registry No.:	115-02-6
Formal Name:	O-(2-diazoacetyl)-L-serine
Synonyms:	CI-337, CN 15757, O-Diazoacetyl-L-serine, NSC 742
MF:	$C_5H_7N_3O_4$
FW:	173.1
Purity:	≥98%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ_{max}: 248 nm



Laboratory Procedures

For long term storage, we suggest that azaserine be stored as supplied at -20°C. It should be stable for at least two years.

Azaserine is supplied as a crystalline solid. Azaserine is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. For biological experiments, we suggest that organic solvent-free aqueous solutions of azaserine be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of azaserine in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Azaserine is a tumor-inhibiting antibiotic isolated from a species of *Streptomyces* that functions as a glutamine analog.[1-2] At 25 µM, it inhibits the glutamine-dependent amidotransferases involved in nucleotide biosynthesis, phosphoribosylformylglycinamidine synthetase and glucosamine-6-phosphate isomerase.[2-3] Azaserine also inhibits the hexosamine biosynthetic pathway, which shunts excessive intracellular glucose into the biosynthesis of UDP-*N*-acetylglucosamine and the formation of *O*-linked glycoproteins.[4] Azaserine has been shown to protect against hyperglycemic endothelial damage through its antioxidant effects.[4]

References

1. Wise, D.R. and Thompson, C.B. Glutamine addiction: A new therapeutic target in cancer. *Trends Biochem. Sci.* **35(8)**, 427-433 (2010).
2. Lyons, S.D., Sant, M.E., and Christopherson, R.I. Cytotoxic mechanisms of glutamine antagonists in mouse L1210 leukemia. *J. Biol. Chem.* **265(19)**, 11377-11381 (1990).
3. King, J.B., West, M.B., Cook, P.F., *et al.* A novel, species-specific class of uncompetitive inhibitors of γ-glutamyl transpeptidase. *J. Biol. Chem.* **284(14)**, 9059-9065 (2009).
4. Rajapakse, A.G., Ming, X.-F., Carvas, J.M., *et al.* The hexosamine biosynthesis inhibitor azaserine prevents endothelial inflammation and dysfunction under hyperglycemic condition through antioxidant effects. *Am. J. Physiol. Heart Circ. Physiol.* **296(3)**, H815-H822 (2009).

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