

L-Alanosine

Chemical Properties

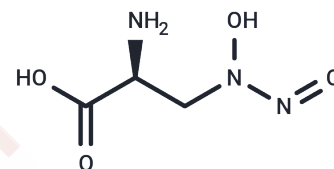
CAS No. : 5854-93-3

Formula: C₃H₇N₃O₄

Molecular Weight: 149.11

Storage: Store at low temperature
Powder: -20°C for 3 years

Actual storage temperature shall be subject to the COA.



Biological Description

Description	L-Alanosine, an antibiotic isolated from the fermentation product of <i>Streptomyces alanosinicus</i> , inhibits tumor cell proliferation by blocking the adenylosuccinate synthetic pathway through the inhibition of adenylosuccinate synthetase and Methylthioadenosine phosphorylase.
Targets(IC50)	Antibiotic,DNA/RNA Synthesis
In vitro	Methods: GBM cells were treated with L-Alanosine (0.25 μM and 0.5 μM for two weeks) to evaluate the effect of pre-exposure to ALA on OCR. Results: Pre-exposure to L-Alanosine resulted in a significant attenuation of maximal OCR (and abolished mitochondrial spare respiratory capacity).[4]
In vivo	Methods: L-Alanosine (150 mg/kg, i.p., three times per week) was administered to athymic nude mice transplanted with luciferase-expressing MTAP-deficient GBM cells that were injected with TMZ. In vivo drug responses were monitored by weekly bioluminescence imaging of the mice and analyzed using Living Image software. Results: Monotherapy with either TMZ or L-Alanosine alone was moderately effective in vivo, inhibiting tumor growth compared to vehicle-treated groups. Importantly, tumors in the combination treatment group remained stable after cessation of treatment compared to the monotherapy groups. [1]

Solubility Information

Solubility	H ₂ O: 10 mg/mL (67.06 mM),when pH is adjusted to 8 with NaOH. Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.7065 mL	33.5323 mL	67.0646 mL
5 mM	1.3413 mL	6.7065 mL	13.4129 mL
10 mM	0.6706 mL	3.3532 mL	6.7065 mL
50 mM	0.1341 mL	0.6706 mL	1.3413 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Efferth T, et al. Identification of gene expression profiles predicting tumor cell response to L-alanosine. *Biochem Pharmacol.* 2003 Aug 15;66(4):613-21.

Chitnis MP, et al. Antitumor effect of L-alanosine (NSC 153553) on sensitive and resistant sublines of murine leukemias. *Tumori.* 1984 Aug 31;70(4):317-20.

Tyagi AK, et al. Identification of the antimetabolite of L-alanosine, L-alanosyl-5-amino-4-imidazolecarboxylic acid ribonucleotide, in tumors and assessment of its inhibition of adenylosuccinate synthetase. *Cancer Res.* 1980 Dec; 40(12):4390-7.

Singh SX, et al. Purine Synthesis Inhibitor L-Alanosine Impairs Mitochondrial Function and Stemness of Brain Tumor Initiating Cells. *Biomedicines.* 2022 Mar 23;10(4):751.

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