L-SelenoMethionine

Cat. No.: HY-B1000A

CAS No.: 3211-76-5

Molecular Formula: $C_5H_{11}NO_2Se$

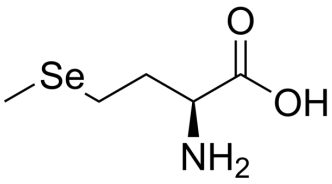
Molecular Weight: 196.11

Target: Endogenous Metabolite; Apoptosis

Pathway: Metabolic Enzyme/Protease; Apoptosis

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

H_2O : 14.29 mg/mL (72.87 mM; Need ultrasonic)
DMSO : 1 mg/mL (5.10 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.0992 mL	25.4959 mL	50.9918 mL
5 mM	1.0198 mL	5.0992 mL	10.1984 mL
10 mM	0.5099 mL	2.5496 mL	5.0992 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
Solubility: 9.09 mg/mL (46.35 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

L-SelenoMethionine, an L-isomer of Selenomethionine, is a major natural food-form of selenium. L-SelenoMethionin is a cancer chemopreventive agent that can reduce cancer incidence by dietary supplementation and induce apoptosis of cancer cells. L-SelenoMethionine also can increase expression of glutathione peroxidase[1][2][3].

IC_{50} & Target

Microbial Metabolite

In Vitro

L-SelenoMethionine (1-500 μM; 24-72 h) is selectively inhibits the growth of prostate cancer cells, compared with normal cells[2].
?L-SelenoMethionine (500 μM; 48 h) induce apoptosis in prostate cancer cells[2].
?L-SelenoMethionine (500 μM; 48 h) causes an increase in arrest in the G2-M phase of the cell cycle selectively in prostate cancer cells[2].

?L-SelenoMethionine (5 μM; 24 h) mitigates gene expression associated with the cellular stress response from 10 cGy irradiation[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	Prostate cancer cells (LNCaP, PC-3, and DU145) and normal prostate cells (PrEC, PrSM, and PrSt)
Concentration:	1, 5, 10, 50, 100, 500 μM
Incubation Time:	24, 48, 72 hours
Result:	Inhibited the growth of prostate cancer cells, with a lower IC_{50} (1-90 μM) at 72 h than normal prostate cells (>500 μM).

Apoptosis Analysis[2]

Cell Line:	Prostate cancer cells (LNCaP, PC-3, and DU145) and normal prostate cells (PrEC, PrSM, and PrSt)
Concentration:	500 μM
Incubation Time:	48 hours
Result:	Exhibited the highest level of DNA condensation in androgen-responsive LNCaP carcinoma cells, followed by PC-3 and DU145 cells. Exhibited the nicked-end DNA labeling in prostate cancer cells. Promoted the PARP cleavage in prostate cancer cells.

Cell Cycle Analysis[2]

Cell Line:	Prostate cancer cells (LNCaP, PC-3, and DU145) and normal prostate cells (PrEC, PrSM, and PrSt)
Concentration:	500 μM
Incubation Time:	48 hours
Result:	Increased the sub-G0-G1 cell fraction of LNCaP (41.5%), PC-3 (12.1%), and DU145 cells (11.2%). Caused a significant increases in G2 cells , particularly in LNCaP (13%), PC-3 (32%), and DU145 (20%) cells.

RT-PCR[3]

Cell Line:	Human thyroid epithelial cells (HTori-3)
Concentration:	5 μM
Incubation Time:	24 hours
Result:	Downregulated the CDC6, GADD45A, FAS and ATF3 in irradiated cells.

In Vivo

L-SelenoMethionine (0.06-12 μg/g diet; p.o. for 3 d) partially or completely prevent the decrease in the serum or plasma levels of total antioxidants in rats exposed to gamma rays, protons or HZE particles[5].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Bioact Mater. 2023 Oct 7:32:164-176.

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REFERENCES

[1]. Schrauzer GN, et, al. Selenomethionine: a review of its nutritional significance, metabolism and toxicity. J Nutr. 2000 Jul;130(7):1653-6.

[2]. Menter DG, et, al. Selenium effects on prostate cell growth. Cancer Epidemiol Biomarkers Prev. 2000 Nov;9(11):1171-82.

[3]. Jornot L, et, al. Differential regulation of glutathione peroxidase by selenomethionine and hyperoxia in endothelial cells. Biochem J. 1995 Mar 1;306 (Pt 2)(Pt 2):581-7.

[4]. Nuth M, et, al. Mitigating effects of L-selenomethionine on low-dose iron ion radiation-induced changes in gene expression associated with cellular stress. Oncol Lett. 2013 Jul;6(1):35-42.

[5]. Guan J, et, al. Effects of dietary supplements on space radiation-induced oxidative stress in Sprague-Dawley rats. Radiat Res. 2004 Nov;162(5):572-9.

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