S-Adenosyl-L-methionine

Cat. No.: HY-B0617

CAS No.: 29908-03-0

Molecular Formula: $C_{15}H_{22}N_6O_5S$

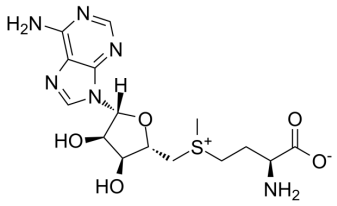
Molecular Weight: 398.44

Target: Endogenous Metabolite; Apoptosis

Pathway: Metabolic Enzyme/Protease; Apoptosis

Storage: 4°C, stored under nitrogen

* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (250.98 mM; Need ultrasonic)

H_2O : ≥ 43 mg/mL (107.92 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.5098 mL	12.5489 mL	25.0979 mL
5 mM	0.5020 mL	2.5098 mL	5.0196 mL
10 mM	0.2510 mL	1.2549 mL	2.5098 mL

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

BIOLOGICAL ACTIVITY

Description

S-Adenosyl-L-methionine (S-Adenosyl methionine) is an orally active methyl group donor. S-Adenosyl-L-methionine is a dietary supplement with potent antidepressant effects. S-Adenosyl-L-methionine also has anti-proliferative, pro-apoptotic and anti-metastatic roles in cancers. S-Adenosyl-L-methionine has the potential for, cancer, liver disease and osteoarthritis research[1][2][3].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

S-Adenosyl-L-methionine (300 μM, 24 or 48 h) induces cell apoptosis, and promotes the cell cycle arrest in Cal-33 and JHU-SCC-011 cells[4].

S-Adenosyl-L-methionine (300 μM, 24 h) decreases the migration of the Cal-33 and JHU-SCC-011 cells[4].

S-Adenosyl-L-methionine (5-40 μg/mL, 48 h) protects the anticancer effect of 5-FU by regulating the expression of DNMTs[5].

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

Apoptosis Analysis[4]

Cell Line:	Cal-33 and JHU-SCC-011 cells
Concentration:	300 μM
Incubation Time:	24 h (Cal-33) or 48 h (HU-SCC-011)
Result:	Showed an approximately 10% and 3%of apoptotic cells respectively.

Cell Cycle Analysis[4]

Cell Line:	Cal-33 and JHU-SCC-011 cells
Concentration:	300 μM
Incubation Time:	24 h (Cal-33) or 48 h (HU-SCC-011)
Result:	Decreased the expression of cyclin B1, E1 and D1 in the Cal-33 and JHU-SCC-011 cells.

In Vivo

S-Adenosyl-L-methionine (30 mg/kg, p.o., for 3 days) prevents ASD like behaviors induced by early postnatal valproic acid exposure in young mice[6].
S-Adenosyl-L-methionine (50 and 100 mg/kg, p.o.) shows antiepileptic, memory-enhancing, and antioxidant properties in a Pentylenetetrazole-induced rat epilepsy model[7].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Valproic acid treated young mice[6]
Dosage:	30 mg/kg
Administration:	p.o., for 3 days
Result:	Alleviated most ASD like neurobehavioral symptoms. Normalized the redox potential in the prefrontal cortex.

CUSTOMER VALIDATION

- J Agric Food Chem. 2021 Jul 30.
- Int Immunopharmacol. 2021 Mar 22;95:107545.
- Molecules. 2023 Apr 11, 28(8), 3375.
- Epigenetics Chromatin. 2021 Dec 4;14(1):52.
- bioRxiv. 2023 Jun 1.

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REFERENCES

[1]. Mosca L, et al. Effects of S‐adenosyl‐L‐methionine on the invasion and migration of head and neck squamous cancer cells and analysis of the underlying mechanisms. Int J Oncol. 2020 May;56(5):1212-1224.

[2]. Ham MS, et al. S-adenosyl methionine specifically protects the anticancer effect of 5-FU via DNMTs expression in human A549 lung cancer cells. Mol Clin Oncol. 2013 Mar;1(2):373-378.

[3]. Ornoy A, et al. S-adenosyl methionine prevents ASD like behaviors triggered by early postnatal valproic acid exposure in very young mice. Neurotoxicol Teratol. 2019 Jan-Feb;71:64-74.

[4]. Dhediya RM, et al. Evaluation of antiepileptic effect of S-adenosyl methionine and its role in memory impairment in pentylenetetrazole-induced kindling model in rats. Epilepsy Behav. 2016 Aug;61:153-157.

[5]. G M Bressa. S-adenosyl-l-methionine (SAMe) as antidepressant: meta-analysis of clinical studies. Acta Neurol Scand Suppl. 1994;154:7-14.

[6]. Wadie I Najm, et al. S-adenosyl methionine (SAMe) versus celecoxib for the treatment of osteoarthritis symptoms: a double-blind cross-over trial. [ISRCTN36233495]. BMC Musculoskelet Disord. 2004 Feb 26;5:6.

[7]. Shelly C Lu, et al. S-adenosylmethionine in liver health, injury, and cancer. Physiol Rev. 2012 Oct;92(4):1515-42.

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