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S-Adenosyl-L-methionine disulfate tosylate

Cat. No.: HY-W017770

CAS No.: 97540-22-2

Molecular Formula: $C_{22}H_{34}N_6O_{16}S_4$

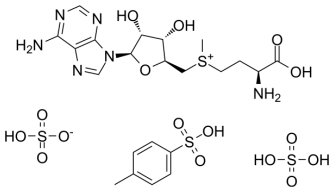
Molecular Weight: 766.8

Target: Endogenous Metabolite; Apoptosis

Pathway: Metabolic Enzyme/Protease; Apoptosis

Storage: -20°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (65.21 mM)

H_2O : 33.33 mg/mL (43.47 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3041 mL	6.5206 mL	13.0412 mL
	5 mM	0.2608 mL	1.3041 mL	2.6082 mL
	10 mM	0.1304 mL	0.6521 mL	1.3041 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (130.41 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.26 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (3.26 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.26 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

S-Adenosyl-L-methionine disulfate tosylate is the disulfate tosylate form of S-Adenosyl-L-methionine (HY-B0617). S-Adenosyl-L-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.
- Biochem Pharmacol. 2023 Dec 6:219:115967.
- Int Immunopharmacol. 2021 Mar 22;95:107545.
- Molecules. 2023 Apr 11, 28(8), 3375.
- Epigenetics Chromatin. 2021 Dec 4;14(1):52.

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REFERENCES

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

[2]. Najm WI, 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.

[3]. 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.

[4]. 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.

[5]. 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.

[6]. 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.

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

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