DL-Buthionine-(S,R)-sulfoximine

Cat. No.: HY-106376

CAS No.: 5072-26-4

Molecular Formula: $C_8H_{18}N_2O_3S$

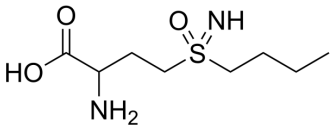
Molecular Weight: 222.31

Target: Ferroptosis

Pathway: Apoptosis

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 25 mg/mL (112.46 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	4.4982 mL	22.4911 mL	44.9822 mL
	5 mM	0.8996 mL	4.4982 mL	8.9964 mL
	10 mM	0.4498 mL	2.2491 mL	4.4982 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 (449.82 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

DL-Buthionine-(S,R)-sulfoximine is a potent inhibitor of glutamylcysteine synthetase biosynthesis.

IC_{50} & Target

glutamylcysteine synthetase[1]

In Vitro

Buthionine sulfoximine is an analogs of methionine sulfoximine and inhibits gamma-glutamylcysteine synthetase about 20 times more effectively than prothionine sulfoximine and at least 100 times more effectively than methionine sulfoximine[1].

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

In Vivo

Treatment of mice bearing HT1080 and HT1080/DR4 xenografts with a continuous i.v infusion of nontoxic doses of D,L-Buthionine-(S,R)-sulfoximine (300 and 600 mg/kg/day) produce a 60% reduction of GSH plasma levels and greater than 95 % reduction in GSH tumor levels in both parental and multidrug-resistant tumors[2].

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

PROTOCOL

Animal Administration [2]

Mice[2]

D,L-Buthionine-(S,R)-sulfoximine is dissolved in sterile 0.9% saline, filtered through a 0.2-p.m polysulfone membrane filter, and administered by 48-h continuous iv. infusion at a dose of 300 mg/kg/day and 600 mg/kg/day starting at 24 h before doxorubicin administration. In vivo GSH levels after treatment with D,L-Buthionine-(S,R)-sulfoximine at a dose of 300 mg/kg and 600 mg/kg for 24 h as an iv. continuous infusion in munine plasma and in tumor tissue of HT1080 and HT1080/DR4 xenografts is measured[2].

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

CUSTOMER VALIDATION

- Adv Sci (Weinh). 2023 Jun 17;e2206798.
- Nucleic Acids Res. 2020 Sep 18;48(16):9109-9123.
- Small. 2021 Nov 1;e2103984.
- Ecotoxicol Environ Saf. 2022 Dec 1;247:114263.
- Ecotoxicol Environ Saf. 2022, 247: 114263.

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REFERENCES

[1]. Griffith OW, et al. Potent and specific inhibition of glutathione synthesis by buthionine sulfoximine (S-n-butyl homocysteine sulfoximine). J Biol Chem. 1979 Aug 25;254(16):7558-60.

[2]. Vanhoefer U, et al. d,l-buthionine-(S,R)-sulfoximine potentiates in vivo the therapeutic efficacy of doxorubicin against multidrug resistance protein-expressing tumors. Clin Cancer Res. 1996 Dec;2(12):1961-8.

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