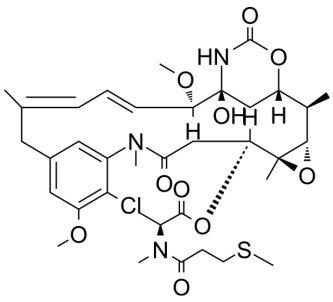
S-methyl DM1

Cat. No.:	HY-100504
CAS No.:	912569-84-7
Molecular Formula:	$C_{36}H_{50}ClN_3O_{10}S$
Molecular Weight:	752.31
Target:	Microtubule/Tubulin; ADC Cytotoxin
Pathway:	Cell Cycle/DNA Damage; Cytoskeleton; Antibody-drug Conjugate/ADC Related
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 : 100 mg/mL (132.92 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3292 mL	6.6462 mL	13.2924 mL
	5 mM	0.2658 mL	1.3292 mL	2.6585 mL
	10 mM	0.1329 mL	0.6646 mL	1.3292 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.32 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

S-methyl DM1 is a thiomethyl derivative of Maytansine. S-methyl DM1 binds to tubulin with a K_d of 0.93 μM and inhibts microtubule polymerization. S-methyl DM1 potently suppresses microtubule dynamic instability and has anticancer effects [1][2].

IC_{50} & Target

Maytansinoids

In Vitro

S-methyl DM1 is the primary cellular or liver metabolite of antibody-maytansinoid conjugates prepared with thiol-containing maytansinoids DM1[1].

The half-maximal concentration for inhibition of microtubule assembly for for S-methyl DM1 is 4 μM. At 100 nM S-methyl-DM1 (84%) suppresses dynamic instability more strongly than Maytansine (45%). Tritiated S-methyl-DM1 bound to 37 high-affinity sites per microtubule (K_d of 0.1 μM)[1].

The concentration dependence curves for the inhibition of cell proliferation by S-methyl DM1 is sigmoidal in shape in MCF7 cells. Minimal inhibition occurred at 200 pM S-methyl DM1, and inhibition is maximal at 3 nM. S-methyl DM1 (IC_{50} of 330 pM) is slightly more potent than Maytansine (IC_{50} of 710 pM)[2].

S-methyl DM1 induces maxima of 80% accumulation of cells in G2/M as compared with only 30% in controls in MCF7 cells[2].

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

REFERENCES

[1]. Lopus M, et al. Maytansine and cellular metabolites of antibody-maytansinoid conjugates strongly suppress microtubule dynamics by binding to microtubules. Mol Cancer Ther. 2010 Oct;9(10):2689-99.

[2]. Oroudjev E, et al. Maytansinoid-antibody conjugates induce mitotic arrest by suppressing microtubule dynamic instability. Mol Cancer Ther. 2010 Oct;9(10):2700-13.

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