Phosphoramide mustard cyclohexanamine

Cat. No.: HY-137316A

CAS No.: 1566-15-0

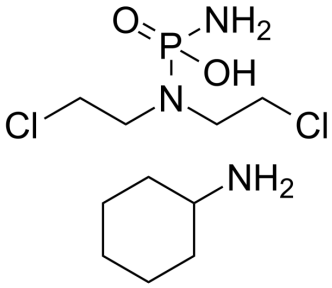
Molecular Formula: $C_{10}H_{24}Cl_2N_3O_2P$

Molecular Weight: 320.2

Target: DNA Alkylator/Crosslinker; Drug Metabolite

Pathway: Cell Cycle/DNA Damage; Metabolic Enzyme/Protease

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



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (312.30 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1230 mL	15.6152 mL	31.2305 mL
	5 mM	0.6246 mL	3.1230 mL	6.2461 mL
	10 mM	0.3123 mL	1.5615 mL	3.1230 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 (312.30 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Phosphoramide mustard cyclohexanamine is a biologically active metabolite of Cyclophosphamide (HY-17420), with anticancer activitiy. Phosphoramide mustard cyclohexanamine induces DNA damage[1][2].

In Vitro

Phosphoramide mustard cyclohexanamine causes cytotoxicity through forming cross-linked DNA adducts which inhibit DNA strand separation during replication[1].

Phosphoramide mustard cyclohexanamine (3-6 μM; 48 hours) reduces cell viability in rat spontaneously immortalized granulosa cells (SIGCs)[1].

Phosphoramide mustard cyclohexanamine (3-6 μM; 24-48 hours) induces DNA adduct formation and ovarian DNA damage[1].

Phosphoramide mustard cyclohexanamine (3-6 μM; 24-48 hours) increases DNA damage responses (DDR) gene mRNA expression levels and DDR proteins[1].

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

Cell Viability Assay[1]

Cell Line:	SIGCs
Concentration:	0.5 μM, 1 μM, 3 μM, 6 μM
Incubation Time:	48 hours
Result:	Reduced cell viability at concentrations of 3 μM and higher.

RT-PCR[1]

Cell Line:	SIGCs
Concentration:	3 μM, 6 μM
Incubation Time:	24 hours, 48 hours
Result:	Increased DDR gene mRNA expression levels.

Western Blot Analysis[1]

Cell Line:	SIGCs
Concentration:	3 μM, 6 μM
Incubation Time:	24 hours, 48 hours
Result:	Generally increased DDR proteins.

In Vivo

Phosphoramide mustard cyclohexanamine (2.1-20.7 mg/kg; i.p.; daily; for 5 days) inhibits subcutaneous tumor growth in rats[2].

?Phosphoramide mustard cyclohexanamine exhibits terminal elimination half-lives (rat 15.1 min) following intravenous administration (rat 59.4 mg/kg)[2].

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

Animal Model:	Rat, subcutaneously implanted Walker 256 carcinosarcoma tumor[2]
Dosage:	2.1 mg/kg, 4.8 mg/kg, 10.4 mg/kg, 20.7 mg/kg
Administration:	Intraperitoneal injection, once daily, for 5 consecutive days
Result:	Required to produce 50% inhibition of subcutaneous tumor growth with dose of 12 mg/kg.

Animal Model:	Rats[2]
Dosage:	86.0 mg/kg (Pharmacokinetic Analysis)
Administration:	Intravenous injection
Result:	$T_{1/2}$ (15.1 min).

REFERENCES

[1]. Shanthi Ganesan, et al. Phosphoramide mustard exposure induces DNA adduct formation and the DNA damage repair response in rat ovarian granulosa cells. Toxicol Appl Pharmacol. 2015 Feb 1; 282(3): 252–258.

[2]. S Genka, et al. Brain and plasma pharmacokinetics and anticancer activities of cyclophosphamide and phosphoramide mustard in the rat. Cancer Chemother Pharmacol. 1990;27(1):1-7.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA