NCI172112

MedChemExpress

Cat. No.:	HY-U00155		
CAS No.:	56605-16-4		
Molecular Formula:	C ₁₄ H ₂₃ Cl ₂ N ₃ O ₂		
Molecular Weight:	336.26		
Target:	DNA Alkylator/Crosslinker		
Pathway:	Cell Cycle/DNA Damage		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month

SOLVENT & SOLUBILITY

In Vitro DMSO: 100 mg/mL (297.39 mM; Need ultrasonic) Mass Solvent 10 mg 1 mg 5 mg Concentration Preparing 1 mM 2.9739 mL 14.8694 mL 29.7389 mL **Stock Solutions** 5 mM 0.5948 mL 2.9739 mL 5.9478 mL 10 mM 0.2974 mL 1.4869 mL 2.9739 mL Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIV	
Description	NCI172112 is a classical bifunctional alkylating agent synthesized in an effort to develop antitumor agents effective against CNS tumors.
In Vivo	NCI172112 (Spirohydantoin mustard, SHM) might serve as a carrier to cross the blood brain barrier ^[1] . The cumulative excretion of radioactivity in the urine and faeces of rats after administration of [2-chloroethyl-U- ¹⁴ C]NCI172112 or [hydantoin-4- ¹⁴ C]NCI172112 (3.13 mg/kg. i.v.) is measured. Four hours after dosing, a significantly (P<0.005) greater amount of radioactivity has been excreted in the urine of rats treated with [hydantoin- ¹⁴ C]NCI172112 than with [ethyl- ¹⁴ C]NCI172112. However, by 24 h, approx.50% of dose is recovered in the urine with both labelled materials. Clearance of radioactivity in the faeces is slow, but, as for the renal excretion, is significantly greater for the hydantoin- ¹⁴ C moiety. No radioactivity is found in the expired air of a rat receiving a single dosing of [hydantoin- ¹⁴ C]NCI172112 and less than 1% is measured after administration of [ethyl- ¹⁴ C]NCI172112. Renal clearance of radioactivity is similar 4 h after administration of [¹⁴ C]NCI172112 to rats with biliary cannulas, with 14.1±2.9 and 17.5±2.1% of the ethyl- ¹⁴ C and 34.5±2.5 and 33.1±6.3%, of the hydantoin- ¹⁴ C dose appearing in the urine after dosing with 3.13 and 6.25 mg/kg,respectively. A difference in the 4 h urinary excretion of the two labels also is observed in dogs given [¹⁴ C]NCI172112 (1 mg/kg, i.v.). The percentages of hydantoin- ¹⁴ C and ethyl- ¹⁴ C eliminated are 29.4±2.7% and 17.2±3.5%, respectively (P<0.05) ^[2] .

Product Data Sheet

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

PROTOCOL

Animal Administration ^[2]	Rats ^[2] Male Sprague-Dawley rats (190-240 g) are lightly anaesthetized with pentobarbital (30 mg/kg i.p.) and [¹⁴ C]NCI172112 (2 μ Ci/rat, 3.13 mg/kg) dissolved in DMSO injected into the femoral vein. The animals are individually housed in glass metabolic cages, with access to food and water for 96 h, and urine and faeces are collected separately. At 96 h, the rats are killed with an overdose of pentobarbital and each carcass is homogenized in 4 vol. water with a Waring blender. Radioactivity in aliguots of drug soln, and urine are measured by liquid scintillation counting with 15 mL phosphor.
	Dogs ^[2] Female foxhounds, weighing 15-20 kg, are anaesthetized with pentobarbital (30 mg/kg) and are maintained in this state throughout the experiment with aditional pentobarbital. [¹⁴ C] NCI172112 (50-60 µCi, 1 mg/kg) in 1 mL DMSO is administered
	an indwelling catheter at timed intervals from 1 min to 4 h and transferred to heparinized tubes chilled on crushed ice. Immediately, a 0.5 mL aliquot is removed and extracted with three 2 mL vol. of cold toluene. The remaining blood is centrifuged, and 0.5 mL aliquots of plasma digested with NCS, extracted with 2 mL vol. of toluene or diluted with 2 mL 10% trichloroacetic acid. From the initial sampling of the dog blood to the start of the extraction or pptn. procedures for plasma,
	8-14 min elapsed. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Brown TD, et al. A phase I trial of spirohydantoin mustard (NSC 172112) in patients with advanced cancer. J Clin Oncol. 1986 Aug;4(8):1270-6.

[2]. Plowman J, et al. The disposition of spirohydantoin mustard (NSC 172112) in rats and dogs. Xenobiotica. 1979 Jun;9(6):379-91.

Caution: Product has not been fully validated for medical applications. For research use only.

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