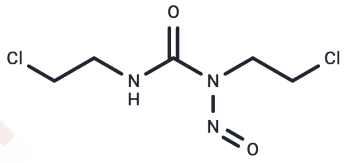
Data Sheet (Cat.No.T3091)

TargetMol

Carmustine

Chemical Properties



CAS No. : 154-93-8

Formula: C5H9Cl2N3O2

Molecular Weight: 214.05

Storage: Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Carmustine (bis-chloroethylnitrosourea) is a cell-cycle phase nonspecific alkylating antineoplastic agent.
Targets(IC50)	DNA Alkylation,DNA Alkylator/Crosslinker
In vitro	Carmustine is an antitumor chemotherapeutic agent. Carmustine (8, 80, and 800 μM) decreases N-acetyltransferase (NAT) activities for 2-aminofluorene (AF) and p-aminobenzoic acid (PABA) in rat glial tumor cytosol and intact cells. The carmustine decreases the formation of DNA-AF adduct when the DNA-AF adduct increases in rat glial tumor cell.
In vivo	Carmustine (BCNU; 25 mg/kg, i.p.) increases the ratio of liver weight to body weight and levels of plasma conjugated bilirubin, while reducing biliary flow and oxidized glutathione levels (GSSG), along with a decrease in the ratio of reduced glutathione (GSH) to GSSG, compared to control rats.
Kinase Assay	The determination of Acetyl-CoAdependent N-acetylation of 2-aminofluorene (AF) and p-aminobenzoic acid (PABA) are performed. Incubation mixtures in the assay system consists of a total volume of 90 μL: glial tumor cells cytosols, diluted as required, in 50 μL of lysis buffer (20 mM Tris/HCl, pH 7.5, 1 mM DTT and 1 mM EDTA), 20 μL of an Acetyl-CoA recycling mixture of 50 mM Tris-HCl (pH7.5), 0.2 mM EDTA, 2 mM DTT, 15 mM acetylcamitine, 2U/mL carnitine acetyltransferase, and AF or PABA at specific concentrations. The reactions are started by addition of 20 μL of Acetyl-CoA. The control reactions have 20 μL distilled water in place of Acetyl-CoA. For the single point activity measurements, the final concentration of AF or PABA is 0.1 mM and AcCoA is 0.5 mM. The reaction mixtures with or without specific concentrations of Carmustine and lomustine are incubated at 37°C for 10 min and stopped with 50 μL of 20% trichloroacetic acid for the PABA reactions, and 100 μL of acetonitrile for the AF reactions. All of the reactions (experiments and controls) are run in triplicate
Animal Research	Carmustine is formulated in corn oil.RatsIndividual rats are weighted prior to enter the study; their weights are recorded, and they are randomLy assigned to four groups. Group I (saline group); This group consists of 12 rats. These rats are injected with 2 mL/kg of saline intraperitoneally (IP) 48 h before the study, being included by the study 48 h later. Group II (corn oil group) consists of 15 rats. These rats are injected with 2 mL/kg of corn oil (vehicle) IP 48 h before the study. Group III (Carmustine group) consists

Animal Research	of 16 rats. These rats are injected with 1 mL per day of saline IP, administered at the same hour of the day as a single-dose for 3 days. Twelve hours after the first dose of saline, corn oil 2 mL/kg + Carmustine 25 mg/kg IP are injected, and the rats are included in the study 48 h after the administration of corn oil + Carmustine. Group IV (trimetazidine group) consists of 12 rats. These rats are injected with 2.5 mg/kg per day of trimetazidine (TMZ) IP, administered at the same hour of the day as a single-dose for 3 days. 12 h after the first dose of TMZ, corn oil 2 mL/kg + Carmustine 25 mg/kg IP are injected, and the rats are included in the study 48 h after the administration of corn oil + Carmustine

Solubility Information

Solubility	DMSO: 62.5 mg/mL (291.99 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 6.25 mg/mL (29.2 mM),Suspension. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (9.34 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.6718 mL	23.359 mL	46.7181 mL
5 mM	0.9344 mL	4.6718 mL	9.3436 mL
10 mM	0.4672 mL	2.3359 mL	4.6718 mL
50 mM	0.0934 mL	0.4672 mL	0.9344 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Lin, S.H. and L.R. Kleinberg. Expert Rev Anticancer Ther, 2008. 8(3): p. 343-59.
Gajda E, Godlewska M, Mariak Z, et al. Combinatory Treatment with miR-7-5p and Drug-Loaded Cubosomes Effectively Impairs Cancer Cells. International Journal of Molecular Sciences. 2020, 21(14): 5039
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