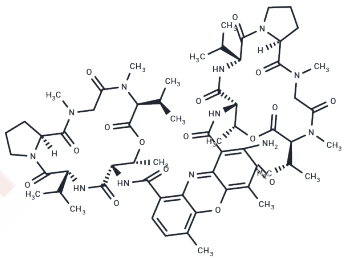
Data Sheet (Cat.No.TN9827)

TargetMol

Dactinomycin

Chemical Properties



CAS No. : 50-76-0

Formula: C62H86N12O16

Molecular Weight: 1255.42

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	Dactinomycin D (Actinomycin IV) is an antibiotic and autophagy activator produced by Streptomyces bacteria fermentation, which inhibits transcription and replication by inserting into the DNA double helix, and can also promote p53 phosphorylation and accumulation through MDM2 overexpression, serving as a chemotherapy drug for cancer treatment.
Targets(IC50)	Apoptosis,Antibacterial,Antibiotic,Autophagy,DNA/RNA Synthesis
In vitro	**Method**: Cell viability was assessed by treating pancreatic cancer cells (PANC-1) with Dactinomycin at concentrations of 1-100 ng/mL for 24-96 hours. **Result**: Dactinomycin induced apoptosis and inhibited the growth of PANC-1 cells.[4]
In vivo	**Method**: In a mouse model of chronic lymphocytic leukemia, Dactinomycin was administered intraperitoneally at a dose of 0.06 mg/kg for 14 consecutive days. **Result**: Dactinomycin prolonged the survival time of mice with chronic lymphocytic leukemia. [6]

Solubility Information

Solubility	DMSO: 80 mg/mL (63.72 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 3.3 mg/mL (2.63 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	0.7965 mL	3.9827 mL	7.9655 mL
5 mM	0.1593 mL	0.7965 mL	1.5931 mL
10 mM	0.0797 mL	0.3983 mL	0.7965 mL
50 mM	0.0159 mL	0.0797 mL	0.1593 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

Barret JM, et al. Evaluation of DNA repair inhibition by antitumor or antibiotic drugs using a chemiluminescence microplateassay. Carcinogenesis. 1997 Dec;18(12):2441-5.
Wu CH, et al. The molecular mechanism of actinomycin D in preventing neointimal formation in rat carotid arteries after balloon injury. J Biomed Sci. 2005;12(3):503-12.
Merkel O, et al. Actinomycin D induces p53-independent cell death and prolongs survival in high-risk chronic lymphocytic leukemia. Leukemia. 2012 Dec;26(12):2508-16.
Kleeff J, et al. Actinomycin D induces apoptosis and inhibits growth of pancreatic cancer cells. Int J Cancer. 2000 May 1;86(3):399-407.
Merkel O, et al. Actinomycin D induces p53-independent cell death and prolongs survival in high-risk chronic lymphocytic leukemia. Leukemia. 2012 Dec;26(12):2508-16.
Strohm C, et al. Transcription inhibitor actinomycin-D abolishes the cardioprotective effect of ischemic reconditioning. Cardiovasc Res. 2002 Aug 15;55(3):602-18.