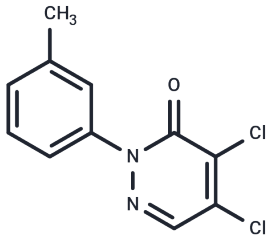
Data Sheet (Cat.No.T60386)

TargetMol

LCS-1

Chemical Properties



CAS No. : 41931-13-9

Formula: C11H8Cl2N2O

Molecular Weight: 255.1

Storage: 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	LCS-1 is a selective superoxide dismutase 1 (SOD1) inhibitor and pyridazin-3-one derivative that displays trypanocidal activity at high concentrations.LCS-1 inhibits superoxide dismutase 1 inducing ROS-dependent death and degrading PARP and BRCA1 in glioma cells.
Targets(IC50)	Apoptosis
In vitro	LCS-1 (1-10,000 nM, 24 hours) exhibits selective cytotoxicity in HCT116 cells against cells with the BLM gene and BLM-deficient cells. [1] LCS-1 exhibited inhibitory effects on adenocarcinoma cell lines (e.g., H23, H2347, HCC827, median IC50 of 0.20 μM), whereas the IC50 for normal human bronchial epithelial cells (NHBE) was 2.66 μM.[2] In multiple myeloma (MM) cells, LCS-1 (0, 1.25, 2 μM, 4 h) significantly inhibited SOD1 enzyme activity in a concentration-dependent manner, and LCS-1 (0, 1.25, 2.5, 5 μM, 48 h) dose-dependently reduced the survival of several MM cell lines, including MM.1R (dexamethasone-resistant), Dox40 (adriamycin-resistant), and LR5 (melphalan-resistant) cell lines. In ANBL6-WT (bortezomib-sensitive) and ANBL6-BR (bortezomib-resistant) cells, the IC50 of LCS-1 treatment for 48 hours was 2.5 μM and 4.6 μM, respectively.[3]
In vivo	In vivo experiments, LCS-1 (20 mg/kg, intraperitoneal injection every other day for 14 days) significantly inhibited the growth of multiple myeloma and prolonged the survival of MM.1S-carrying mice. [3]

Solubility Information

Solubility	DMSO: 40 mg/mL (156.8 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Corn Oil: 2 mg/mL (7.84 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	3.920 mL	19.6002 mL	39.2003 mL
5 mM	0.784 mL	3.920 mL	7.8401 mL
10 mM	0.392 mL	1.960 mL	3.920 mL
50 mM	0.0784 mL	0.392 mL	0.784 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

Gupta A, et al. Nanocarrier Composed of Magnetite Core Coated with Three Polymeric Shells Mediates LCS-1 Delivery for Synthetic Lethal Therapy of BLM-Defective Colorectal Cancer Cells. Biomacromolecules. 2018 Mar 12; 19(3):803-815.

Somwar R, et al. Superoxide dismutase 1 (SOD1) is a target for a small molecule identified in a screen for inhibitors of the growth of lung adenocarcinoma cell lines. Proc Natl Acad Sci U S A. 2011 Sep 27;108(39):16375-80.

Du T, et al. Proteomic analysis identifies mechanism(s) of overcoming bortezomib resistance via targeting ubiquitin receptor Rpn1Leukemia. 2021 Feb;35(2):550-561.