

Product Data Sheet

Product Name: LCS-1
Cat. No.: GC63592

Chemical Properties

Cas. No. 41931-13-9

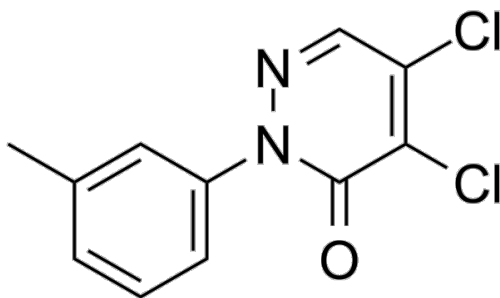
Formula $C_{11}H_8Cl_2N_2O$ M.Wt 255.1

Solubility Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

LCS-1 is a superoxide dismutase 1 (SOD1) inhibitor. LCS-1 inhibits SOD1 activity with an IC₅₀ value of 1.07 μM. LCS-1 induces the early- and late-stage apoptosis of multiple myeloma (MM.1S) cells[1][2][3].

LCS-1 (1-10000 nM; 24 hours) has selective cytotoxicity towards bloom syndrome gene product (BLM) -proficient and BLM-deficient HCT116 cells[1]. LCS-1 shows growth inhibitory effect on 10/27 adenocarcinoma cell lines (median IC₅₀=0.20 μM; such as H23, H2347, HCC827 cell lines) and normal human bronchial epithelial (NHBE) cells (IC₅₀=2.66 μM)[2]. LCS-1 (0, 1.25, 2 μM; 4 h) in a

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concentration-dependent manner triggers significant inhibition of SOD1 enzymatic activity in multiple myeloma (MM) cells[3].LCS-1 (0, 1.25, 2.5, 5 μ M; 48 h) in a dose-dependent manner reduces the viability of various MM cell lines, including MM.1R (Dexamethasone-resistant), Dox40 (Doxorubicin-resistant), or LR5 (Melphalan-resistant) cell lines[3].LCS-1 (48 h) has IC₅₀ values of 2.5 and 4.6 μ M for cell viability of ANBL6-WT (Bortezomib-sensitive) and ANBL6-BR (Bortezomib-resistant) cells, respectively[3].LCS-1 (1.25 μ M; 16 h) induces a significant increase in ROS levels and O₂- levels in MM.1S cells[3].LCS-1 (1.25 μ M; 16 h) shows a significant decrease in GSH/GSSG ratio in MM.1S cells[3].LCS-1 (1.25 μ M; 24h) induces the release of mitochondrial cytochrome-c into the cytosol, and enriches the proteins (HSP60/CLPP) mediating mtUPR signaling in MM.1S cells[3].LCS-1-induced O₂- (1.25 μ M; 5 h) triggers a marked decrease in both RP2CP and RP1CP forms of 26S proteasomes[3].LCS-1 (2 μ M; 16 h) induces the early- and late-stage apoptosis of MM.1S cells[3].LCS-1 (0, 0.5, 1, 1.5, 2 μ M) upregulates p53/p21 signaling, as well as downregulates survival pathway proteins MCL-1, BclxL, or c-Myc in MM.1S cells[3].LCS-1 (0, 4, 8, 16, 24 h; 2 μ M) shows a rapid and robust induction of mitochondrial unfolded protein response (UPR) proteins (BIP, PERK, phosphorylated eIF2 α , or a lectin protein calnexin) in MM.1S and ANBL6-BR cells[3].

LCS-1 (20 mg/kg; i.p. every other day for 14 days) inhibits MM growth and prolongs host survival in MM.1S-bearing mice[3].

[1]. 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.

[2]. 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;108(39):16375-16380.

[3]. Du T, et al. Proteomic analysis identifies mechanism(s) of overcoming bortezomib resistance via targeting ubiquitin receptor Rpn13. *Leukemia*. 2021 Feb;35(2):550-561.

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