

Product Data Sheet

Product Name: SJB3-019A

Cat. No.: GC13401

Chemical Properties

Cas. No. 2070015-29-9

Chemical Name 2-(pyridin-3-yl)naphtho[2,3-d]oxazole-4,9-dione

SMILES O=C(C1=CC2OC(C3=CN=CC=C3)=N1)C4=CC=CC=C4C2=O

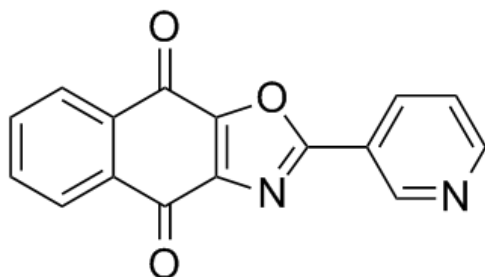
Formula $C_{16}H_8N_2O_3$ M.Wt 276.25

Solubility $\geq 10.85\text{mg/mL}$ in DMSO with gentle warming 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



Protocol

Cell experiment [1]:

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Cell lines	CCRF-SB, Sup-B15, and KOPN-8 cells (human B-cell acute lymphoblastic leukemia lines)
Preparation Method	Cells were cultured in complete medium with 10% fetal bovine serum at 37°C, 5% CO ₂ . Cells were treated with SJB3-019A at concentrations of 0.2–0.6μM for 24 hours.
Reaction Conditions	0.2–0.6μM; 24h.
Applications	SJB3-019A significantly suppressed cell viability in a dose-dependent manner and induced apoptosis. SJB3-019A triggered G2/M phase cell cycle arrest. Mechanistically, SJB3-019A downregulated USP1 expression, leading to reduced ID1 protein levels and inhibition of AKT phosphorylation (p-AKT), thereby activating the ID1/AKT apoptotic pathway.
Animal experiment [2]:	
Animal models	6-week-old male nude mice with MHCC-97H cell-derived subcutaneous xenografts and C57BL/6 mice with orthotopic liver tumors
Preparation Method	Mice were intraperitoneally injected with SJB3-019A (0.5mg/kg/day) alone or in combination with Doxorubicin (1mg/kg/day) for 2 weeks.
Dosage form	0.5mg/kg/day; 14-day treatment.

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Applications SJB3-019A significantly enhanced Dox-induced tumor growth inhibition in both subcutaneous xenograft and orthotopic liver tumor models, with combined treatment showing superior efficacy compared to monotherapy.

References:

- [1] Kuang X, Xiong J, Lu T, et al. Inhibition of USP1 induces apoptosis via ID1/AKT pathway in B-cell acute lymphoblastic leukemia cells. *Int J Med Sci.* 2021 Jan 1;18(1):245-255.
- [2] Lu Z, Zhang Z, Yang M, et al. Ubiquitin-specific protease 1 inhibition sensitizes hepatocellular carcinoma cells to doxorubicin by ubiquitinated proliferating cell nuclear antigen-mediated attenuation of stemness. *Anticancer Drugs.* 2022 Aug 1;33(7):622-631.

Background

SJB3-019A is a novel and potent USP1 inhibitor, exhibiting an IC_{50} value of $0.0781\mu M$ in K562 cells^[1-2]. SJB-019A can be used in the study of leukemia and related diseases^[3-4].

In vitro, MM.1S multiple myeloma cells were treated with SJB3-019A ($0.1-1\mu M$) for 24 hours. SJB3-019A significantly induced the activation of caspase-3/8/9 and the cleavage of PARP, inhibited the DNA repair pathway by increasing the ubiquitination levels of FANCD2/FANCI/PCNA, and simultaneously downregulated the expression of the ID protein family to promote cell differentiation^[5]. B-cell acute lymphoblastic leukemia cells (CCRF-SB, Sup-B15, and KOPN-8) were treated with SJB3-019A ($0.2-0.6\mu M$) for 24 hours. SJB3-019A significantly induced G2/M phase arrest and apoptosis via the mitochondrial pathway, and reduced AKT phosphorylation levels by inhibiting the USP1-ID1 axis^[6].

In vivo, nude mice and C57BL/6 mice bearing MHCC-97H cell xenografts or orthotopic liver tumors were administered daily intraperitoneal injections of SJB3-019A ($0.5mg/kg$) in combination with Doxorubicin ($1mg/kg$) for 2 weeks. SJB3-019A significantly enhanced the tumor suppression induced by Doxorubicin^[7].

References:

- [1] Tan L, Shan H, Han C, et al. Discovery of Potent OTUB1/USP8 Dual Inhibitors Targeting

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- [2] Kong T, Laranjeira ABA, Letson CT, et al. RSK1 dependency in FLT3-ITD acute myeloid leukemia. Blood Cancer J. 2024 Nov 26;14(1):207.
- [3] Ishikawa C, Mori N. Role of Ubiquitin-specific Protease 1 in the Pathogenesis and Treatment of Adult T-Cell Leukemia. Anticancer Res. 2025 Nov;45(11):4827-4840.
- [4] Takahashi H, Yamanaka S, Kuwada S, et al. A Human DUB Protein Array for Clarification of Linkage Specificity of Polyubiquitin Chain and Application to Evaluation of Its Inhibitors. Biomedicines. 2020 Jun 4;8(6):152.
- [5] Das DS, Das A, Ray A, et al. Blockade of Deubiquitylating Enzyme USP1 Inhibits DNA Repair and Triggers Apoptosis in Multiple Myeloma Cells. Clin Cancer Res. 2017 Aug 1;23(15):4280-4289.
- [6] Kuang X, Xiong J, Lu T, et al. Inhibition of USP1 induces apoptosis via ID1/AKT pathway in B-cell acute lymphoblastic leukemia cells. Int J Med Sci. 2021 Jan 1;18(1):245-255.
- [7] Lu Z, Zhang Z, Yang M, et al. Ubiquitin-specific protease 1 inhibition sensitizes hepatocellular carcinoma cells to doxorubicin by ubiquitinated proliferating cell nuclear antigen-mediated attenuation of stemness. Anticancer Drugs. 2022 Aug 1;33(7):622-631.

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