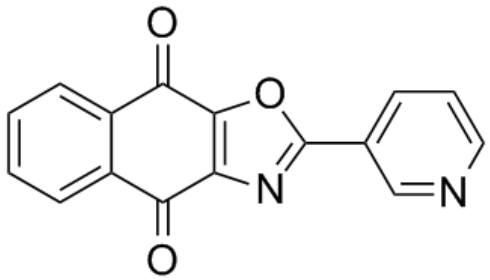
Product Data Sheet

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=C2OC(C3=CN=CC=C3)=N1)C4=CC=CC=C4C2=O		
Formula	$C_{16}H_8N_2O_3$	M.Wt	276.25
Solubility	≥ 10.85mg/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]:

Product Data Sheet

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.

Caution: Product has not been fully validated for medical applications. For research use only.
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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 0.0781μM 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 (0.1–1μM) 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 (0.2–0.6μM) 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

Product Data Sheet

Proteostasis in Non-Small-Cell Lung Cancer. J Med Chem. 2022 Oct 27;65(20):13645-13659.
[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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