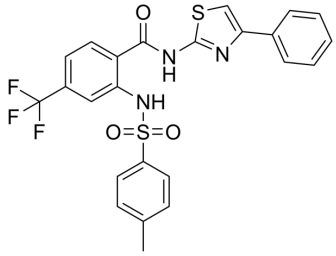
ML364

Cat. No.:	HY-100900
CAS No.:	1991986-30-1
Molecular Formula:	$C_{24}H_{18}F_3N_3O_3S_2$
Molecular Weight:	517.54
Target:	Deubiquitinase
Pathway:	Cell Cycle/DNA Damage
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 33 mg/mL (63.76 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.9322 mL	9.6611 mL	19.3222 mL
	5 mM	0.3864 mL	1.9322 mL	3.8644 mL
	10 mM	0.1932 mL	0.9661 mL	1.9322 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 0.5% CMC-Na/saline water
   Solubility: 20 mg/mL (38.64 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (4.83 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.83 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ML364 is a selective ubiquitin specific peptidase 2 (USP2) inhibitor (IC_{50}=1.1 μM) with anti-proliferative activity, which direct binds to USP2 (K_d=5.2 μM), induces an increase in cellular cyclin D1 degradation and causes cell cycle arrest. ML364 increases the levels of mitochondrial ROS and decreases in the intracellular content of ATP[1][2].

IC_{50} & Target

IC50: 1.1 μM (USP2)[1]
Kd: 5.2 μM (USP2)[1]

In Vitro

ML364 (5-20 μM; 24-48 hours) inhibits LnCAP and MCF7 cells viability in a dose-dependent manner[1].
?ML364 (10 μM; 2-24 hours) reduces cyclin D1 protein levels in a time-, dose-, and proteasome-dependent manner in HCT116 cells and Mino cells[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	LnCAP, MCF7 cells
Concentration:	5, 10, 15, 20 μM
Incubation Time:	24, 48 hours
Result:	LnCAP and MCF7 cells showed a decrease in cell viability in a dose-dependent manner.

Western Blot Analysis[1]

Cell Line:	HCT116, Mino cells
Concentration:	2, 4, 8, 16, 24 hours
Incubation Time:	10 μM
Result:	Reduced cyclin D1 protein levels in a time-, dose-, and proteasome-dependent manner in HCT116 cells and Mino cells.

CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 31;13(1):1700.
- Cell Death Differ. 2020 Sep;27(9):2710-2725.
- EMBO J. 2022 Jul 11;e108791.
- J Med Chem. 2022 Oct 11.
- Am J Cancer Res. 2021 Oct 15;11(10):4746-4767.

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REFERENCES

[1]. Davis MI, et al. Small Molecule Inhibition of the Ubiquitin-specific Protease USP2 Accelerates cyclin D1 Degradation and Leads to Cell Cycle Arrest in Colorectal Cancer and Mantle Cell Lymphoma Models. J Biol Chem. 2016 Nov 18;291(47):24628-24640.

[2]. Hashimoto M, et al. Inhibition of ubiquitin-specific protease 2 causes accumulation of reactive oxygen species, mitochondria dysfunction, and intracellular ATP decrement in C2C12 myoblasts. Physiol Rep. 2019 Jul;7(14):e14193.

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