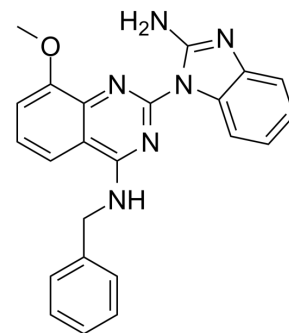


ML240

Cat. No.:	HY-19795		
CAS No.:	1346527-98-7		
Molecular Formula:	C ₂₃ H ₂₀ N ₆ O		
Molecular Weight:	396.44		
Target:	p97		
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 : 12.5 mg/mL (31.53 mM; Need ultrasonic)
Ethanol : < 1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.5224 mL	12.6122 mL	25.2245 mL
	5 mM	0.5045 mL	2.5224 mL	5.0449 mL
	10 mM	0.2522 mL	1.2612 mL	2.5224 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: 2.5 mg/mL (6.31 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: 2.5 mg/mL (6.31 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (6.31 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ML240 is a potent p97 inhibitor, inhibiting p97 ATPase with IC₅₀ value of 100 nM.

IC₅₀ & Target

IC₅₀: 100 nM (p97)^[1]

In Vitro

ML240 is a potent p97 inhibitor, with an IC₅₀ of 100 nM. ML240 is active in the Ubg76V-GFP stabilization assay (IC₅₀, 0.9 μM). ML240 inhibits p97 competitively with respect to ATP with a K_i values of 0.22 μM. ML240 also inhibits labeling of only three

protein kinase domains by >50% when tested at 20 μ M: PIP5 K3 (belongs to phosphoinositide-3 kinase family), JAK1 JH2 (N-terminal pseudokinase domain of JAK1), and DNAPK (DNA-dependent protein kinase). ML240 (1.1, 3.3, 10, or 20 μ M) induces executioner caspases 3 and 7 and triggers cell death independently of apical caspases 8 and 9^[1]. ML240 is cytotoxic to HCT15 and SW403 cells, with GI₅₀s of 0.76 and 0.5 μ M after treatment for 24 h, and 0.54 and 0.5 μ M after treatment for 72 h, respectively^[2].

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

PROTOCOL

Cell Assay^[2]

HeLa cells stably expressing ODD-luciferase are seeded onto a 96-well white solid bottom plate (5000 cells/well) and cells are grown for 16 h. Cells are treated with DMEM containing MG132 (4 μ M) for 1h and washed with 100 μ L PBS twice. DMEM containing 2.5% FBS, cycloheximide (50 μ g/mL) and ML240 are added into the well. Four 96-well plates are prepared and one of the plates is taken out from incubator at each time point (70, 90, 120, or 150 min). Luciferin (50 μ L of 1 mg/mL in PBS) is added into each well containing 50 μ L of medium and incubated at room temperature with shaking at 500 rpm for 5 min. Luminescence intensity is determined with 0.1 ms integration time on the Synergy HT Microplate Reader^[2].

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

CUSTOMER VALIDATION

- PLoS One. 2021 Nov 3;16(11):e0251957.
- Vet Microbiol. 2022 Jul 12;272:109511.

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REFERENCES

[1]. Chou TF et al. Structure-activity relationship study reveals ML240 and ML241 as potent and selective inhibitors of p97 ATPase. ChemMedChem, 2013 Feb, 8(2):297-312.

[2]. Chou TF, et al. Selective, reversible inhibitors of the AAA ATPase p97. Probe Reports from the NIH Molecular Libraries Program. April 14, 2011.

Caution: Product has not been fully validated for medical applications. For research use only.

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