YM-1

Cat. No.: HY-18399

CAS No.: 409086-68-6

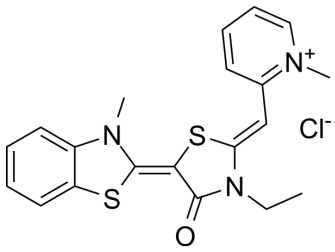
Molecular Formula: $C_{20}H_{20}ClN_3OS_2$

Molecular Weight: 417.98

Target: HSP; NO Synthase

Pathway: Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Immunology/Inflammation

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 50 mg/mL (119.62 mM; Need ultrasonic)
DMSO : 30 mg/mL (71.77 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3925 mL	11.9623 mL	23.9246 mL
	5 mM	0.4785 mL	2.3925 mL	4.7849 mL
	10 mM	0.2392 mL	1.1962 mL	2.3925 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.98 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.98 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

YM-1 is a stable and soluble MKT-077 (HY-15096) analog and an orally active Hsp70 inhibitor. YM-1 induces cell death of HeLa cells and up-regulates the level of p53 and p21 proteins[1][2].

In Vitro

YM-1 promotes Hsp70-dependent steps in nNOS maturation and partially blocks formation of the ATP-bound form[1].
YM-1 (0-200 μM) activates the binding of Hsp70 to its unfolded substrate[1].
YM-1 (0.001-1000 μM) converts Hsp70 to its tight-affinity conformation and shows binding efficacy to Hsp70 with an IC_{50} value of 8.2 μM[1].
YM-1 (0, 0.1, 0.5 and 1 μM; 24 hours) promotes nNOS ubiquitination[1].
YM-1 (5 and 10 μM; 24 and 48 hours) induces cell death of HeLa cells and growth arrest of hTERT-RPE1 cells[2].
YM-1 (10 μM; 48 hours) up-regulates p53 and p21 proteins and down-regulates FoxM1 and survivin[2].

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

Western Blot Analysis[2]

Cell Line:	HeLa and hTERT-RPE1 cell lines
Concentration:	10 μM
Incubation Time:	48 hoursI
Result:	Increased the level of p53 and p21 and decreased the level of FoxM1 and survivin.

In Vivo

YM-1 (1 mM; oral administration, for 7 days) rescues polyQ toxicity in Drosophila by activating Hsp70[1].

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

Animal Model:	UAS-hAR52Q flies with polyQ AR-induced dihydrotestosterone (DHT) phenotype[1]
Dosage:	1 mM
Administration:	Oral administration; 1 mM, for 7 days
Result:	Weakened the DHT-dependent eye degeneration phenotype and rescued DHT-dependent pupal toxicity of the polyQ AR.

REFERENCES

[1]. Wang AM, et al. Activation of Hsp70 reduces neurotoxicity by promoting polyglutamine protein degradation. Nat Chem Biol. 2013 Feb;9(2):112-8.

[2]. Khondoker Md Zulfiker Rahman, et al. Effect of an Inhibitor of HSP70, YM-1, on Hikeshi Knockout Cells. Thermal Medicine. 2017, 33(4):129-134.

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