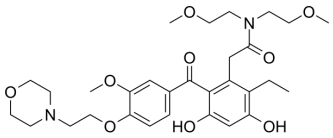
KW-2478

Cat. No.:	HY-13468
CAS No.:	819812-04-9
Molecular Formula:	$C_{30}H_{42}N_2O_9$
Molecular Weight:	574.66
Target:	HSP
Pathway:	Cell Cycle/DNA Damage; Metabolic Enzyme/Protease
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 : 200 mg/mL (348.03 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7402 mL	8.7008 mL	17.4016 mL
	5 mM	0.3480 mL	1.7402 mL	3.4803 mL
	10 mM	0.1740 mL	0.8701 mL	1.7402 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: ≥ 5 mg/mL (8.70 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 5 mg/mL (8.70 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5 mg/mL (8.70 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

KW-2478 is an inhibitor of Hsp90α, with an IC_{50} of 3.8 nM, and has antitumor activity against various human hematological tumor cells.

IC_{50} & Target

HSP90α
3.8 nM (IC_{50})

In Vitro

KW-2478 is an inhibitor of Hsp90, with an IC_{50} of 3.8 nM for Hsp90α. KW-2478 shows anti-proliferative activity against

	multiple myeloma (MM) and non-Hodgkin's lymphoma (NHL), with GI_{50}s of 0.30 μM (OPM-2/GFP), 0.34 μM (KMS-11), 0.39 μM (RPMI 8226), 0.12 μM (NCI-H929), 0.36 μM (Raji), 0.098 μM (SR), and 0.33 μM μM (SC-1). KW-2478 also inhibits the transcription of c-Maf and Cyclin D1 genes by mainly suppressing the function of Cdk9[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	KW-2478 (25-200 mg/kg, i.v.) inhibits tumor growth in combined immunodeficiency (SCID) mice bearing NCI-H929 cells, without body weight loss. KW-2478 (100 mg/kg, i.v.) causes degradation of the Hsp90 client proteins (IGF-1Rβ, c-Raf-1, Cdk9) levels and dephosphorylated Erk1/2 proteins in NCI-H929 tumors of mice[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	The cells are plated into 96-well plates and treated with KW-2478. After 72 hours of cultivation, cell viability is determined using WST-1. WST reagent is added to the wells, followed by incubation for 4 hours at 37°C. After that, the absorbance at 450 nm with reference at 650 nm is measured with a microplate spectrophotometer[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Mice[1] Severe combined immunodeficient (SCID) mice are intraperitoneally injected with anti-asialo GM1 antibody. The next day, all mice are subcutaneously inoculated with NCI-H929 cells (1×10^7 cells) suspended in PBS containing 50% of Matrigel. After 10 days, tumor volume is measured using the Antitumor test system II, a computer-operated system including software and instruments. SCID mice with tumors (190 to 290 mm^3) are selected. After randomly grouping, saline (vehicle) or KW-2478 is intravenously administered to mice once or twice daily for 5 days. 17-AAG is intravenously administered to mice. Tumor volume is calculated by the Anti-tumor test system II as follows: Tumor volume=DL×DS×DS×1/2. Fourteen days after the initial administration, blood samples of each mouse are obtained, followed by measurement of serum M protein (Ig kappa chain) with Human Kappa-b&f ELISA Quantitation Kit. The statistical analysis is performed using SAS software[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int J Mol Sci. 2023 Nov 4, 24(21), 15971.
- Vet Microbiol. February 2022, 109316.

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REFERENCES

[1]. Nakashima T, et al. New molecular and biological mechanism of antitumor activities of KW-2478, a novel nonansamycin heat shock protein 90 inhibitor, in multiple myeloma cells. Clin Cancer Res. 2010 May 15;16(10):2792-802.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA