JW 55

Cat. No.: HY-13968

CAS No.: 664993-53-7

Molecular Formula: $C_{25}H_{26}N_2O_5$

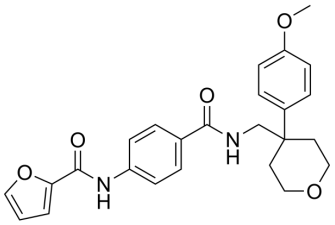
Molecular Weight: 434.48

Target: PARP

Pathway: Cell Cycle/DNA Damage; Epigenetics

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 : ≥ 50 mg/mL (115.08 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3016 mL	11.5080 mL	23.0160 mL
5 mM	0.4603 mL	2.3016 mL	4.6032 mL
10 mM	0.2302 mL	1.1508 mL	2.3016 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: ≥ 2.5 mg/mL (5.75 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.75 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.75 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

JW 55 is a potent and selective β-catenin signaling pathway inhibitor, which functions via inhibition of the PARP domain of tankyrase 1 and tankyrase 2 (TNKS1/2). JW 55 decreases auto-PARsylation of TNKS1/2 in vitro with IC_{50}s of 1.9 μM and 830 nM respectively.

IC_{50} & Target

TNKS2	TNKS1
0.83 μM (IC_{50})	1.9 μM (IC_{50})

In Vitro	JW 55 (JW55) is a potent and selective inhibitor of the canonical Wnt pathway. Wnt3a-induced HEK293 cells containing a transiently transfected ST-Luc (SuperTop-luciferase) reporter show inhibition by JW55 with an IC_{50} value of 470 nM. JW55 is effective in the range of 1 to 5 μM in SW480 cells and 0.01 to 5 μM in HCT-15 cells. JW55 is effective in the range of 1 to 5 μM in SW480 cells and 0.01 to 5 μM in HCT-15 cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	JW 55 (100 mg/kg, orally) reduces tumor development in conditional Apc knockout mice. JW55 reduces XWnt8-induced axis duplication inXenopus embryos and Tamoxifen-induced polyposis formation in conditional APC mutant mice[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	A total of 1,000 SW480 or RKO cells are seeded in 96-well plates. The day after, the cell culture medium is exchanged to solutions that contained 0.1% DMSO or 10 μM JW55 for RKO cells and 0.1% DMSO or 10, 5, or 1 μM JW55 for SW480 cells. All samples consist of a minimum of 6 replicates. The plate is incubated in an IncuCyte inside a cell culture incubator. Images are captured every second hour to monitor proliferation[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Mice[1] Seven 12-week old female $Apc^{CKO/CKO}$/Lgr5-CreERT2 mice are injected intraperitonally with 25 mg/kg of Tamoxifen diluted in an ethanol and corn oil (ratio 1:4). The mice are randomized into 2 groups and treated with either JW55 (100 mg/kg) or vehicle (DMSO). Daily per oral applications started the day after and continued for 3 weeks. The mouse body weight is measured twice a week. The mice are sacrificed and the intestines are dissected, washed in PBS, and fixed in formaldehyde [10% solution (v/v) in PBS]. The small intestines are stained using 1% methylene blue prepared in 10% paraformalaldehyde (PFA)/PBS solution. Small ileum Swiss-rolls are embedded in paraffin sectioned and stained with hematoxylin and eosin. Fixed colons are embedded in paraffin, sectioned and stained with an anti-β-catenin antibody. The number and size of the intestinal lesions are quantified by the Ellipse program. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Chin Med. 2022 Jan 6;17(1):11.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.

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REFERENCES

[1]. Waaler J, et al. A novel tankyrase inhibitor decreases canonical Wnt signaling in colon carcinoma cells and reduces tumor growth in conditional APC mutant mice. Cancer Res. 2012 Jun 1;72(11):2822-32.

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