IWP-2

Cat. No.: HY-13912

CAS No.: 686770-61-6

Molecular Formula: $C_{22}H_{18}N_4O_2S_3$

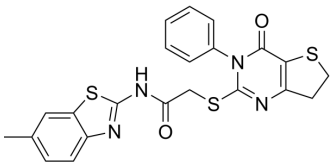
Molecular Weight: 466.6

Target: Wnt; Casein Kinase; Porcupine

Pathway: Stem Cell/Wnt; Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMF : 12.5 mg/mL (26.79 mM; ultrasonic and warming and heat to 60°C)
DMSO : 2 mg/mL (4.29 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.1432 mL	10.7158 mL	21.4316 mL
5 mM	0.4286 mL	2.1432 mL	4.2863 mL
10 mM	0.2143 mL	1.0716 mL	2.1432 mL

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 10 mg/mL (21.43 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.2 mg/mL (0.43 mM); Clear solution
3. Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline
   Solubility: ≥ 0.1 mg/mL (0.21 mM); Clear solution
4. Add each solvent one by one: 5% DMSO >> 95% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.1 mg/mL (0.21 mM); Clear solution
5. Add each solvent one by one: 5% DMSO >> 95% corn oil
   Solubility: ≥ 0.1 mg/mL (0.21 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

IWP-2 is an inhibitor of Wnt processing and secretion with an IC_{50} of 27 nM. IWP-2 targets the membrane-bound O-acyltransferase porcupine (Porcn) and thus preventing a crucial Wnt ligand palmitoylation. IWP-2 is also an ATP-competitive

	CK1δ inhibitor with an IC_{50} of 40 nM for the gatekeeper mutant ^{M82F}CK1δ[1][2].
IC_{50} & Target	CK1δ 40 nM (IC_{50})
In Vitro	IWP-2 inhibits the proliferation of the investigated cell lines within the single digit μM range. IWP-2 inhibits cell proliferation in A818-6, MiaPaCa2, Panc-1, Panc-89, HT29, HEK293, SW620 and Capan cell with EC_{50}s of 8.96 μM, 1.90 μM, 2.33 μM, 3.86 μM, 4.67 μM, 2.76 μM, 1.90 μM and 2.05 μM, respectively[2]. Panc-1 cells are either untreated or treated with 2.33 μM IWP-2 for 48 h. In IWP-2 treated cells, the CK1δ kinase peak activity is reduced to approximately 66% residual activity compared to the activity in untreated cells, respectively. IWP-2 reduces the activity of CK1δ in Panc1 cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	To evaluate the efficacy of IWP-2 in vivo, 200 μL each of IWP-2-liposome or free liposome i separately injected into C57BL/6 mice intraperitoneally about 2 h before injection of a similar volume of either blue-dye-filled latex beads or E. coli DH5α. IWP-2 causes significant reduction in the uptake of blue beads as well as E. coli as assessed by CFUs in peritoneal lavage cells within 2 h. In addition, the levels of TNF-α and IL-6 in the lavage fluid of the corresponding mice are reduced by 2-4-fold compared with control values. Interestingly, IWP-2 even induces a considerable increase in secretion of the anti-inflammatory cytokine IL-10[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	The human RCC cell lines 786O and Caki-2 (5×10^3) are seeded into 96-well plates. Cell viability is estimated by MST assay after Caki-2 acells are incubated with ncreasing concentrations of LEF together with 20 μM IWP-2 for 48 h.After treatment, 10 μL MTS is added into each well for 2 h incubation. The absorbance is measured using a model ELX800 Micro Plate Reader at 490 nm. For colony formation assay, Caki-2 cells are trypsinized to single cell suspensions and seeded into fresh 6-well plates at 1000 cells/well. Then cells are incubated with LEF at depicted concentrations for 7 days. Colonies are fixed with absolute methanol for 15 min and then stained with 0.1% crystal violet for 20 min. After washing with PBS three times, the colonies with a diameter over 2 mm are visualized by a digital camera[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Adv Mater. 2021 Oct 10;e2104829.
- Dev Cell. 2020 Dec 21;55(6):679-694.e11.
- Clin Sci. 2023 Jan 13;137(1):109-127.
- Stem Cells Transl Med. 2021 May;10(5):743-755.
- Biochem Pharmacol. 2019 Nov;169:113608.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Chen B, et al. Small molecule-mediated disruption of Wnt-dependent signaling in tissue regeneration and cancer. Nat Chem Biol. 2009 Feb;5(2):100-7.

[2]. Maiti G, et al. The Wingless homolog Wnt5a stimulates phagocytosis but not bacterial killing. Proc Natl Acad Sci U S A. 2012 Oct 9;109(41):16600-5.

[3]. García-Reyes B, et al. Discovery of Inhibitor of Wnt Production 2 (IWP-2) and Related Compounds As Selective ATP-Competitive Inhibitors of Casein Kinase 1 (CK1) δ/ε. J Med Chem. 2018 May 10;61(9):4087-4102.

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