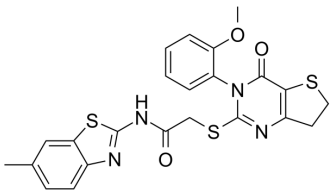
IWP-4

Cat. No.:	HY-12879
CAS No.:	686772-17-8
Molecular Formula:	$C_{23}H_{20}N_4O_3S_3$
Molecular Weight:	496.62
Target:	Wnt
Pathway:	Stem Cell/Wnt
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 : 1.3 mg/mL (2.62 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.0136 mL	10.0681 mL	20.1361 mL
	5 mM	---	---	---
	10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description

IWP-4 is a small molecule Wnt inhibitor with an IC_{50} of 25 nM.

IC_{50} & Target

IC50: 25 nM (Wnt)[1]

In Vitro

IWP-4 is a small molecule Wnt inhibitor with an IC_{50} of 25 nM. IWP-4 induces the expression of cardiac markers, including cardiac troponin I (CTNI) and cardiac myosin heavy chain bright cells (MYH^{hi+}). IWP-4 also results in the appearance of beating foci (0.44±0.10 SEM beats per second), which is absent in all cultures not receiving IWP-4. Further, flow cytometric analysis shows that there are significantly more MYH^{lo+} cells in IWP-4 treated cultures ($P<0.0002$) compare with untreated cultures at day 16, being 17.0±1.3 SD% and 5.4±1.4 SD%, respectively. Quantification of NKX2-5 protein expression shows that 63% (481/817) of IWP-4 treated cells display nuclear NKX2-5 expression[1]. Mesenchymal precursor cells (MPCs) treated with IWP-4 show no significant changes in the expression of AXIN2, CTNNB1 and GSK3B as compare to osteogenic medium alone on day 7, but MPCs treated with IWP-4 express elevates levels of DKK1 and GSK3β on day 21. IWP-4 also causes a significant down regulation of SPARC and COL1A1[2].

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

PROTOCOL

Cell Assay [1]

hESC cultures are obtained in mTeSR-1 medium and expanded with daily medium exchange until colonies reach the desired level of confluence (~70% to 80%). At this time (marked day 0), mTeSR-1 is replaced with a basal medium comprised of RPMI 1640 medium supplemented with 2% B27 supplement and 1% penicillin/streptomycin. 20 ng/mL BMP-4 and/or 6 ng/mL activin A are added to the basal medium for primitive streak induction, and exchanged daily until day 3. Then, basal media with or without 5 mM IWP-4 is added to the cells and exchanged every 2 days [dimethyl sulfoxide (DMSO) at the same concentration is used as a vehicle control] until day 15, after which basal medium is supplied every 2 days[1].

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.

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REFERENCES

[1]. Hudson J, et al. Primitive cardiac cells from human embryonic stem cells. Stem Cells Dev. 2012 Jun 10;21(9):1513-23.

[2]. Frith JE, et al. Microbioreactor array screening of Wnt modulators and microenvironmental factors in osteogenic differentiation of mesenchymal progenitor cells. PLoS One. 2013 Dec 23;8(12):e82931.

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