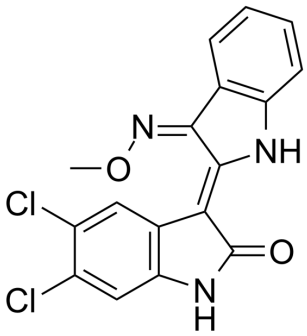
KY19382

Cat. No.:	HY-131447
CAS No.:	2226664-93-1
Molecular Formula:	$C_{17}H_{11}Cl_2N_3O_2$
Molecular Weight:	360.19
Target:	GSK-3; Wnt; β-catenin
Pathway:	PI3K/Akt/mTOR; Stem Cell/Wnt
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 4.17 mg/mL (11.58 mM; ultrasonic and warming and heat to 80°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.7763 mL	13.8816 mL	27.7631 mL
	5 mM	0.5553 mL	2.7763 mL	5.5526 mL
	10 mM	0.2776 mL	1.3882 mL	2.7763 mL

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

BIOLOGICAL ACTIVITY

Description

KY19382 is a potent and orally active dual inhibitor of CXXC5-DVL and GSK3β, with IC_{50}s of 19 and 10 nM, respectively.
KY19382 activates Wnt/β-catenin signaling through inhibitory effects on both CXXC5-DVL interaction and GSK3β activity.
KY19382 can be used for the research of high fat diet (HFD) induced metabolic diseases[1][2].

IC_{50} & Target

CXXC5-DVL	GSK3β
19 nM (IC_{50})	10 nM (IC_{50})

In Vitro

KY19382 (0.01 and 0.1 μM; 48 h) promotes ATDC5 cells proliferation[1].
KY19382 (0.1 μM; 3 d) up-regulates the mRNA levels of chondrogenic differentiation markers in ATDC5 and C28/I2 cells[1].
KY19382 (0.01 and 0.1 μM; 24 h) inactivates GSK3α/β in ATDC5 cells[1].
KY19382 (0.1 μM; 4 h) interrupts the CXXC5-DVL interaction in ATDC5 cells[1].
KY19382 (0.001-10 μM; 18 h) enhances the TOPFlash activity in HEK293 reporter cells[1].
KY19382 (0.1 μM; 48 h) elevates nuclear translocation of β-catenin in ATDC5 cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

Cell Line:	ATDC5 cells
Concentration:	0, 0.01, 0.1 μM
Incubation Time:	48 hours
Result:	Enhanced the number of BrdU-positive ATDC5 cells.

Cell Proliferation Assay[1]

Cell Line:	ATDC5 cells
Concentration:	0, 0.01, 0.1 μM
Incubation Time:	24 hours
Result:	Increased the level of β-catenin in a dose-dependent manner.

In Vivo

KY19382 (0.1 mg/kg; i.p. once daily for 2 weeks) delays growth plate senescence in older mice and promotes growth plate maturation in rapidly growing young mice[1].
KY19382 (0.1 mg/kg; i.p. once daily for 10 weeks) significantly increases the length of tibiae in mice[1].
KY19382 (5 mg/kg; i.p.) displays a relatively favorable bioavailability (F=16.74%), showing half-life of 16.20 h and an exposure level of 6,555.79 ng•h/ml[1].
KY19382 (A3051) (25 mg/kg; p.o. once daily for 16 weeks) shows reduction in adipocyte size and anti-inflammatory effects[2].
A3051 (25 mg/kg; p.o. once daily for 5 days) reduces fasting glucose in mice[2].
A3051 (25 mg/kg; p.o. once daily for 3 weeks) reduces the hepatosteatosis in mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57BL/6 male mice (7-weeks-old or 3-weeks-old)[1]
Dosage:	0.1 mg/kg
Administration:	I.p. once daily for 2 weeks
Result:	Increased nuclear β-catenin in the growth plate chondrocytes dramatically. Elevated the height of each growth plate zone and BrdU-positive cells. Did not affect the cartilage resorption of rapidly growing young mice.

Animal Model:	SD male rats[1]
Dosage:	1 mg/kg for i.v. and 5 mg/kg for i.p. (Pharmacokinetic Analysis)
Administration:	I.v. and i.p. administration
Result:	I.v.: $t_{1/2}$=3.33 h; AUC=7832.81 ng · h/mL; CL=0.12 L/h/kg. I.p.: $t_{1/2}$=16.20 h; F=16.74%; C_{max}=463.37 ng/mL.

CUSTOMER VALIDATION

- Research Square Preprint. 2022 May..

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REFERENCES

[1]. Choi S, et, al. CXXC5 mediates growth plate senescence and is a target for enhancement of longitudinal bone growth. Life Sci Alliance. 2019 Apr 10; 2(2): e201800254.

[2]. Choi KY, et, al. Compositions and methods for suppressing and/or treating metabolic diseases and/or a clinical condition thereof. WO2020079569.

Caution: Product has not been fully validated for medical applications. For research use only.

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