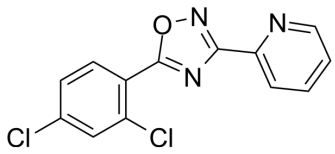
JY-2

Cat. No.:	HY-153347
CAS No.:	339103-05-8
Molecular Formula:	$C_{13}H_7Cl_2N_3O$
Molecular Weight:	292.12
Target:	Others
Pathway:	Others

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 : 100 mg/mL (342.33 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4233 mL	17.1163 mL	34.2325 mL
5 mM	0.6847 mL	3.4233 mL	6.8465 mL
10 mM	0.3423 mL	1.7116 mL	3.4233 mL

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

BIOLOGICAL ACTIVITY

Description

JY-2 is a moderately selective and orally active Forkhead transcription factor forkhead box O1 (FoxO1) inhibitor that inhibits FoxO1 transcriptional activity with an IC_{50} of 22 μM. JY-2 shows moderate inhibition against FoxO3a and FoxO4. JY-2 shows anti-diabetic activity[1].

IC_{50} & Target

22 μM (FoxO1 transcriptional activity)[1]

In Vitro

JY-2 (10-100 μM; 24 h) reduces palmitic acid (PA; HY-N0830)-induced lipotoxicity in HepG2 and INS-1 cells[1].

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

Real Time qPCR[1]

Cell Line:	HepG2 and INS-1 cells
Concentration:	10, 50 and 100 μM
Incubation Time:	24 h

Result:	Reduced palmitic acid (PA)-induced G6Pase and PEPCK mRNA expression. Inhibited PA-induced lipid accumulation. Reduced PA-induced mRNA expression of ER stress markers (ATF3, CHOP and GRP78).

Western Blot Analysis[1]

Cell Line:	HepG2 cells
Concentration:	10, 50 and 100 μM
Incubation Time:	4 h; in the presence of PA (500μM)
Result:	Increased p-FoxO1 levels in the whole cell lysate with a concurrent reduction in nuclear FoxO1 levels.

In Vivo

JY-2 (50-200 mg/kg; oral; 3 times for two days or daily for 4 weeks) shows anti-diabetic effects in mice[1].

Pharmacokinetic parameters of JY-2[1]

Parameters	i.v. (20 mg/kg)	p.o. (50 mg/kg)
AUC_{all} (ng·h/mL)	5017 ± 1038	12270 ± 2775
$AUC_{inf.obs}$ (ng·h/mL)	5030 ± 1037	12400 ± 2753
C_{max} (ng/mL)	10790 ± 3269	6826 ± 2342
T_{max} (h)	0.1 ± 0.1	0.8 ± 0.7
$T_{1/2}$ (h)	0.8 ± 0.2	1.3 ± 0.4
$MRT_{inf.obs}$ (h)	0.7 ± 0.1	2.0 ± 0.1
F (%)		97.8

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

Animal Model:	C57BL/6J mice[1]
Dosage:	50, 100, 200 mg/kg
Administration:	Oral, three times for two days (9:00 AM, 7:00 PM, 9:00 AM on the next day)
Result:	Improved glucose tolerance. Significantly reduced the expression of G6Pase and PEPCK mRNA in the liver. Enhanced mRNA expression of insulin and PDX-1 in the pancreas.

Animal Model:	db/db mice and C57BL/6J mice, high fat-diet-induced obese diabetic (DIO) model[1]
Dosage:	50, 100 mg/kg
Administration:	Oral, once daily for 4 weeks

Result:	Decreased the levels of fasting blood glucose, improved glucose tolerance. The expression of ColIV, a fibrosis marker, was also lowered.

Animal Model:	C57BL/6J mice[1]
Dosage:	20 mg/kg or 50 mg/kg
Administration:	IV or PO (Pharmacokinetic Analysis)
Result:	Showed an overall good pharmacokinetic profile.

REFERENCES

[1]. Choi HE, et al. Novel FoxO1 inhibitor, JY-2, ameliorates palmitic acid-induced lipotoxicity and gluconeogenesis in a murine model. Eur J Pharmacol. 2021 May 15;899:174011.

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