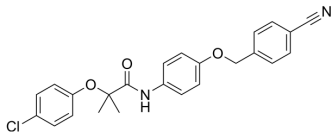
AMPK activator 4

Cat. No.:	HY-131334
CAS No.:	2493239-46-4
Molecular Formula:	$C_{24}H_{21}ClN_2O_3$
Molecular Weight:	420.89
Target:	AMPK
Pathway:	Epigenetics; PI3K/Akt/mTOR
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 : 250 mg/mL (593.98 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3759 mL	11.8796 mL	23.7592 mL
5 mM	0.4752 mL	2.3759 mL	4.7518 mL
10 mM	0.2376 mL	1.1880 mL	2.3759 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.94 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AMPK activator 4 is a potent AMPK activator without inhibition of mitochondrial complex I. AMPK activator 4 selectively activates AMPK in the muscle tissues. AMPK activator 4 dose-dependently improves glucose tolerance in normal mice, and significantly lowers fasting blood glucose level and ameliorates insulin resistance in db/db diabetic mice. Anti-hyperglycemic effect[1].

In Vitro

AMPK activator 4 (compound B10) (0-20 μM; 12-24 hours) induces phosphorylation of AMPK and its downstream protein ACC [1].

AMPK activator 4-mediated AMPK phosphorylation requires LKB1[1].

AMPK activator 4 slight decreases the viability of HepG2 cells after 72 hours of treatment at 10-20 μM[1].

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

Western Blot Analysis[1]

Cell Line:	C2C12 myotubes, HepG2 and HuH-7 cells
Concentration:	0-20 μM
Incubation Time:	12-24 hours
Result:	Induced dose-dependently phosphorylation of ACC in C2C12 myotube cells, and the phosphorylation of ACC was highly consistent with the phosphorylation of AMPK. Increased the phosphorylation of AMPK and ACC in human hepatocarcinoma HepG2 and HuH-7 cells.

In Vivo

AMPK activator 4 (100 mg/kg; Intragastrical administration; daily for 9 weeks) shows anti-hyperglycemic effect[1].

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

Animal Model:	db/db mice (5-week old)[1]
Dosage:	100 mg/kg
Administration:	Intragastrical administration; daily for 9 weeks
Result:	Significantly lowered the fasting blood glucose in db/db mice (2-6 weeks). Significantly improved insulin resistance in db/db mice (for 9 weeks). The body weight and the serum levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) (two markers of liver injury) were not significantly affected.

REFERENCES

[1]. Sun G, You Y, Li H, et al. Discovery of AdipoRon analogues as novel AMPK activators without inhibiting mitochondrial complex I. Eur J Med Chem. 2020;200:112466.

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