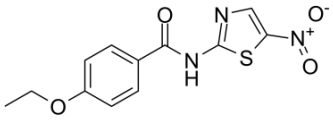
MID-1

Cat. No.:	HY-115461
CAS No.:	312608-54-1
Molecular Formula:	$C_{12}H_{11}N_3O_4S$
Molecular Weight:	293.3
Target:	Insulin Receptor
Pathway:	Protein Tyrosine Kinase/RTK
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 : 31.25 mg/mL (106.55 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4095 mL	17.0474 mL	34.0948 mL
5 mM	0.6819 mL	3.4095 mL	6.8190 mL
10 mM	0.3409 mL	1.7047 mL	3.4095 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 2.08 mg/mL (7.09 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

MID-1 is a disruptor of MG53-IRS-1 (Mitsugumin 53-insulin receptor substrate-1) interaction. MID-1 disrupts molecular association of MG53 with IRS-1 and abolishes MG53-induced IRS-1 ubiquitination and degradation in skeletal muscle, leading to elevated IRS-1 expression level and increased insulin signaling and glucose uptake[1].

In Vitro

MID-1 (5 μM; 24 h) increases the IRS-1 expression level in skeletal muscle by disrupting the MG53-IRS-1 interaction[1].
MID-1 (10 μM; 12 h) reduces the luciferase activity in HEK 293 cell line expressing NLUC-IRS-1 and CLUC-C14A[1].
MID-1 (1-20 μM; 12 h) disrupts the MG53-IRS-1 interaction but not MG53-FAK interaction in HEK 293 cells[1].
MID-1 (0.1-10 μM; 4-24 h) abolishes MG53-induced IRS-1 ubiquitination and degradation in HEK 293 cells[1].
MID-1 (5-10 μM; 24 h) increases insulin signaling and insulin-elicited glucose uptake in C2C12 myotubes[1].
MID-1 (5-10 μM; 24 h) enhances skeletal myogenesis[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	C2C12 myotubes
Concentration:	5 μM
Incubation Time:	24 h
Result:	Increased the IRS-1 protein level.

In Vivo

MID-1 does not have good pharmacokinetics in vivo[1].

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

REFERENCES

[1]. Lee H, et, al. MG53-IRS-1 (Mitsugumin 53-Insulin Receptor Substrate-1) Interaction Disruptor Sensitizes Insulin Signaling in Skeletal Muscle. J Biol Chem. 2016 Dec 23;291(52):26627-26635.

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