CDN1163

Cat. No.: HY-101455

CAS No.: 892711-75-0

Molecular Formula: $C_{20}H_{20}N_2O_2$

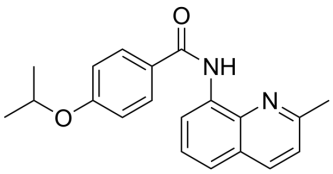
Molecular Weight: 320.39

Target: Calcium Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

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 : 100 mg/mL (312.12 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1212 mL	15.6060 mL	31.2120 mL
	5 mM	0.6242 mL	3.1212 mL	6.2424 mL
	10 mM	0.3121 mL	1.5606 mL	3.1212 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: ≥ 2.5 mg/mL (7.80 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (7.80 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.80 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

CDN1163 is an allosteric sarco/endoplasmic reticulum Ca^{2+}-ATPase (SERCA) activator that improves Ca^{2+} homeostasis. CDN1163 attenuates diabetes and metabolic disorders[1].

IC_{50} & Target

SERCA[1]

In Vitro

CDN1163 (10?μM; 24 hours; rat cardiac myocyte cells) treatment reduces high glucose-induced resistin and nuclear NFATc expression and increases the phosphorylation of AMPKα in a time-dependent manner[2].

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

Western Blot Analysis[2]

Cell Line:	Rat cardiac myocyte cells (H9c2)
Concentration:	10 μM
Incubation Time:	24 hours
Result:	High glucose-induced resistin and nuclear NFATc expression are significantly reduced. The phosphorylation of AMPKα is increased in a time-dependent manner.

In Vivo

CDN1163 (50 mg/kg; intraperitoneal injection; for 5 days; male ob/ob mice and lean ob/+ mice) increases SERCA2 Ca^{2+}-ATPase activity, decreases endoplasmic reticulum (ER) stress-induced cell death in vitro and improves liver Ca^{2+} transport activity. CDN1163 reduces blood glucose levels and improves metabolic parameters and gluconeogenic gene expression, reverses hepatic steatosis, inhibits ER stress and ER stress-induced apoptosis, and improves mitochondrial efficiency in ob/ob mice in vivo[1].

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

Animal Model:	Male 8-10-week old ob/ob mice and lean ob/+ mice[1]
Dosage:	50 mg/kg
Administration:	Intraperitoneal injection; for 5 days
Result:	Markedly lowered fasting blood glucose, improved glucose tolerance, and ameliorated hepatosteatosis but did not alter glucose levels or body weight. Increased expression of uncoupling protein 1 (UCP1) and UCP3 in brown adipose tissue and reduced the hepatic expression of genes involved in gluconeogenesis and lipogenesis, attenuated ER stress response and ER stress-induced apoptosis, and improved mitochondrial biogenesis, possibly through SERCA2-mediated activation of AMP-activated protein kinase pathway.

CUSTOMER VALIDATION

- Nat Commun. 2023 Feb 23;14(1):1020.
- J Hazard Mater. 2021, 126025.
- Cancer Lett. 2023 Oct 6:216435.
- Biochem Pharmacol. 2022 Jul 6;115164.
- J Virol. 2021 Mar 10;JVI.00217-21.

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REFERENCES

[1]. Kang S, et al. Small Molecular Allosteric Activator of the Sarco/Endoplasmic Reticulum Ca2+-ATPase (SERCA) Attenuates Diabetes and Metabolic Disorders. J Biol Chem. 2016 Mar 4;291(10):5185-98.

[2]. Singh R, et al. A role for calcium in resistin transcriptional activation in diabetic hearts. Sci Rep. 2018 Oct 23;8(1):15633.

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

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