Mitiglinide calcium hydrate

Cat. No.: HY-B0682A

CAS No.: 207844-01-7

Molecular Formula: $C_{19}H_{24}NO_3 \cdot {}_1/_2Ca.H_2O$

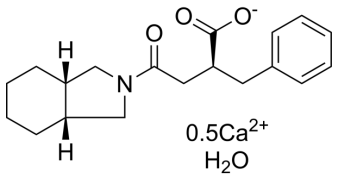
Molecular Weight: 352.46

Target: Potassium Channel

Pathway: Membrane Transporter/Ion Channel

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (70.93 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.8372 mL	14.1860 mL	28.3720 mL
5 mM	0.5674 mL	2.8372 mL	5.6744 mL
10 mM	0.2837 mL	1.4186 mL	2.8372 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 (7.09 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.09 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Mitiglinide calcium hydrate (KAD-1229), an insulinotropic agent, is an ATP-sensitive K^+ (K_{ATP}) channel antagonist. Mitiglinide calcium hydrate is highly specific to the Kir6.2/SUR1 complex (the pancreatic beta-cell K_{ATP} channel). Mitiglinide Calcium hydrate can be used for the research of type 2 diabetes[1][2].

IC_{50} & Target

K_{ATP} channel[1]

In Vitro

Mitiglinide calcium hydrate inhibits the Kir6.2/SUR1 channel currents in a dose-dependent manner (IC_{50} value, 100 nM) but does not significantly inhibit either Kir6.2/SUR2A or Kir6.2/SUR2B channel currents even at high doses (more than 10 μM) in COS-1 cells[1].

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

In Vivo

Mitiglinide Calcium hydrate (1-3 mg/kg; p.o.) suppresses the increase in plasma glucose levels seen after a meal load and the area under the curve for plasma glucose levels (AUCglucose) up to 5 h after the meal load[2].

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

Animal Model:	Pregnant Wistar rats (12 weeks)[2]
Dosage:	0.3 mg/kg, 1 mg/kg, 3 mg/kg
Administration:	Oral administration
Result:	Dose-dependently suppressed $AUC_{glucose}$ levels.

REFERENCES

[1]. Y Sunaga, et al. The effects of mitiglinide (KAD-1229), a new anti-diabetic drug, on ATP-sensitive K+ channels and insulin secretion: comparison with the sulfonylureas and nateglinide. Eur J Pharmacol. 2001 Nov 9;431(1):119-25.

[2]. Kiyoshi Ichikawa, et al. Effect of KAD-1229, a novel hypoglycaemic agent, on plasma glucose levels after meal load in type 2 diabetic rats. Clin Exp Pharmacol Physiol. May-Jun 2002;29(5-6):423-7.

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