Pimobendan

Cat. No.: HY-B0204

CAS No.: 74150-27-9

Molecular Formula: $C_{19}H_{18}N_4O_2$

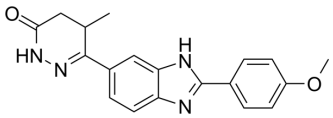
Molecular Weight: 334.37

Target: Phosphodiesterase (PDE)

Pathway: Metabolic Enzyme/Protease

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 : 50 mg/mL (149.53 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9907 mL	14.9535 mL	29.9070 mL
	5 mM	0.5981 mL	2.9907 mL	5.9814 mL
	10 mM	0.2991 mL	1.4953 mL	2.9907 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: ≥ 2.75 mg/mL (8.22 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.75 mg/mL (8.22 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (8.22 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pimobendan (UD-CG115) is a selective inhibitor of PDE3 with IC_{50} of 0.32 μM.

IC_{50} & Target

PDE3[1].

In Vitro

Pimobendan (UD-CG115) exhibits selective inhibition of PDE III isolated from guinea pig cardiac muscle with IC_{50} of 0.32 uM compared to the inhibition of PDE I and PDE II (IC_{50} >30 μM). In human atrial cells, 100 μM Pimobendan (UD-CG115) significantly increases the L-type calcium current (ICa(L)) (evoked by depolarization to +10 mV from a holding potential of -

	40 mV) by 250.4% with the half-maximal stimulation (EC_{50}) of 1.13 μM. In rabbit atrial cells, Pimobendan (UD-CG115) increases ICa(L) at +10 mV by 67.4.%, which is significantly lower than that obtained in human atrial cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Pimobendan (UD-CG115) shows a beneficial effect on survival in the murine model of EMC virus-induced myocarditis. Administration of Pimobendan (UD-CG115) significantly increases the final survival rate from 33.6% (control) to 53.3% (0.1 mg/kg) or 66.7% (1 mg/kg). Pimobendan (UD-CG115) (1 mg/kg) also significantly reduces myocardial cellular infiltration, the level of intracardiac tumor necrosis factor (TNF)-α and interleukin (IL)-1β compared with the control group, which shows no effect on myocardial necrosis, heart weight and body weight. Pimobendan (UD-CG115) suppresses expression of the intracardiac iNOS gene , causing reduction of intracardiac NO production[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [2]	Mice[2] Since, in this model, most mice die of congestive heart failure within 14 days after EMC virus inoculation (21), the survival was observed up to 14 days in this study. Pimobendan was administered in doses of 0.1 mg/kg or 1 mg/kg daily for 14 days from the day of EMC virus inoculation while control mice received vehicles only. Thirty mice were randomly assigned to each group[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Sci Signal. 2020 Nov 24;13(659):eaax0273.
- Pharmaceuticals. 2022, 15(10), 1186.

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REFERENCES

[1]. Kajimoto K, et al. Contribution of phosphodiesterase isozymes to the regulation of the L-type calcium current in human cardiac myocytes. Br J Pharmacol. 1997 Aug;121(8):1549-56.

[2]. Iwasaki A, et al. Pimobendan inhibits the production of proinflammatory cytokines and gene expression of inducible nitric oxide synthase in a murine model of viral myocarditis. J Am Coll Cardiol. 1999 Apr;33(5):1400-7.

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