Carvedilol

Cat. No.: HY-B0006

CAS No.: 72956-09-3

Molecular Formula: $C_{24}H_{26}N_2O_4$

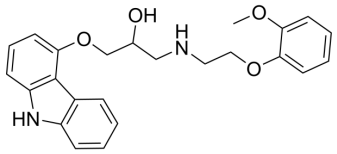
Molecular Weight: 406.47

Target: Adrenergic Receptor; Autophagy; Bacterial

Pathway: GPCR/G Protein; Neuronal Signaling; Autophagy; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	1 year
	-20°C	6 months



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (246.02 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.4602 mL	12.3010 mL	24.6021 mL
	5 mM	0.4920 mL	2.4602 mL	4.9204 mL
	10 mM	0.2460 mL	1.2301 mL	2.4602 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 (6.15 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (6.15 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Carvedilol (BM 14190) is a non-selective β/α-1 blocker[1]. Carvedilol inhibits lipid peroxidation in a dose-dependent manner with an IC_{50} of 5 μM. Carvedilol is a multiple action antihypertensive agent with potential use in angina and congestive heart failure[2]. Carvedilol is an autophagy inducer that inhibits the NLRP3 inflammasome[3].

IC_{50} & Target

β/α-1 adrenergic receptor[1]
IC50: 5 μM (lipid peroxidation)[2]
Autophagy[3]

In Vitro	Superoxide generation by activated human neutrophils in vitro is inhibited by Carvedilol with an IC_{50} of 28 μM. Carvedilol is shown to scavenge oxygen free radicals in a cell-free system with an IC_{50} of 25 μM[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Rep. 2023 Mar 20;42(3):112275.
- Free Radic Biol Med. 2023 Aug, 139, 108897.
- J Pathol. 2023 Feb 24.
- Cells. 2022, 11(17), 2633.
- ACS Omega. August 8, 2022.

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REFERENCES

[1]. Eggertsen R, et al. Acute haemodynamic effects of carvedilol (BM 14190), a new combined beta-adrenoceptor blocker and precapillary vasodilating agent, in hypertensive patients. Eur J Clin Pharmacol. 1984;27(1):19-22.

[2]. Feuerstein GZ, et al. Myocardial protection by the novel vasodilating beta-blocker, carvedilol: potential relevance of anti-oxidant activity. J Hypertens Suppl. 1993 Jun;11(4):S41-8.

[3]. Wong WT, et al. Repositioning of the β-Blocker Carvedilol as a Novel Autophagy Inducer That Inhibits the NLRP3 Inflammasome. Front Immunol. 2018 Aug 22;9:1920.

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