Nebivolol hydrochloride

Cat. No.: HY-B0203A

CAS No.: 152520-56-4

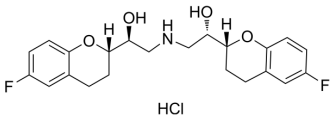
Molecular Formula: $C_{22}H_{26}ClF_2NO_4$

Molecular Weight: 441.9

Target: Adrenergic Receptor

Pathway: GPCR/G Protein; Neuronal Signaling

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 : 100 mg/mL (226.30 mM; Need ultrasonic)
H_2O : 1.79 mg/mL (4.05 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	2.2630 mL	11.3148 mL	22.6296 mL
5 mM	0.4526 mL	2.2630 mL	4.5259 mL
10 mM	0.2263 mL	1.1315 mL	2.2630 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 (4.71 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.71 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.71 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nebivolol (R 065824) hydrochloride is an orally active beta receptor blocker and has the high beta(1)-receptor affinity.Nebivolol hydrochloride has direct vasodilator properties and adrenergic blocking characteristics. Nebivolol hydrochloride can be used for the research of kinds of diseases such as hypertension, coronary artery disease, congestive heart failure and ischemic heart disease[1][2].

In Vitro

Nebivolol hydrochloride improves endothelial dysfunction via its strong stimulatory effects on the activity of the endothelial nitric oxide synthase and via its antioxidative properties[1].
?Nebivolol hydrochloride (0.1 μM-10 μM, 1, 2, 4, 7 or 14 days) inhibits haCSMC or haEC proliferation with IC_{50} values of ~ 6.0 μ

M[2].

?Nebivolol hydrochloride (0.1 μM-10 μM, 24 h) induces a moderate rate of apoptosis[2].

? ?Nebivolol hydrochloride (0.1, 1, 5,10 μM, 4 days)increases NO formation? and decreases endothelin-1 secretion in HaCEs [2]

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

Cell Proliferation Assay[2]

Cell Line:	haCSMCs (human coronary smooth muscle cells) and haECs (endothelial cells)
Concentration:	0.1 μM-10 μM
Incubation Time:	1, 2, 4, 7 or 14 days
Result:	Reduced proliferation in HaECs and HaCSMCs in a concentration- and time-dependent.

Apoptosis Analysis[2]

Cell Line:	haCSMCs and haECs
Concentration:	0.1 μM-10 μM
Incubation Time:	24 h
Result:	Induced a moderate apoptosis in concentration-dependent and showed a decrease of haCSMCs in the S-phase by 66%.

CUSTOMER VALIDATION

- Virology. 2023 Jun 21.
- J Pharmaceut Biomed. 2020, 113870.

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REFERENCES

[1]. Thomas Münzel, et al. Nebivolol: the somewhat-different beta-adrenergic receptor blocker. J Am Coll Cardiol. 2009 Oct 13;54(16):1491-9.

[2]. Brehm BR, et al. Effects of nebivolol on proliferation and apoptosis of human coronary artery smooth muscle and endothelial cells. Cardiovasc Res. 2001 Feb 1;49(2):430-9.

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