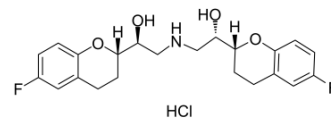


Nebivolol hydrochloride

Cat. No.:	HY-B0203A		
CAS No.:	152520-56-4		
Molecular Formula:	C ₂₂ H ₂₆ ClF ₂ NO ₄		
Molecular Weight:	441.9		
Target:	Adrenergic Receptor; Apoptosis		
Pathway:	GPCR/G Protein; Neuronal Signaling; Apoptosis		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (141.43 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		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

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.75 mg/mL (6.22 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.75 mg/mL (6.22 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.75 mg/mL (6.22 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nebivolol hydrochloride selectively inhibits β₁- adrenergic receptor with IC₅₀ of 0.8 nM. Target: β₁- adrenergic receptor. Nebivolol reduces cell proliferation of human coronary smooth muscle cells (haCSMCs) and endothelial cells (haECs) in a concentration- and time-dependent manner. Nebivolol treatment for 7 days causes significant reduction in cell growth of haCSMCs with IC₅₀ of 6.1 μM, and inhibits accelerated haCSMC proliferation stimulated by growth factors PDGF-BB, bFGF, and TGFβ with IC₅₀ values of 6.8 μM, 6.4 μM and 7.7 μM, respectively. Nebivolol treatment (10⁻⁵ M) of haCSMCs for 48 hours induces a moderate apoptosis of 23% and a decrease from 16% to 5% in the number of cells in S-phase. During Nebivolol incubation, NO formation of HaCEs increases, while endothelin-1 transcription and secretion are

suppressed. Administration of Nebivolol (initially by iv within 10 minutes of reperfusion and then orally) to rats with myocardial infarction (MI) reduces myocardial apoptosis, which is mediated by regulation of NO. Nebivolol, significantly, prevents left ventricular (LV) pressure changes, reduces total and regional apoptotic cardiomyocytes. Nebivolol treatment lowers mean blood pressure (MBP) in rats with MI slightly, but not significantly.

CUSTOMER VALIDATION

- J Pharmaceut Biomed. 2020, 113870.

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REFERENCES

- [1]. 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.
- [2]. Mercanoglu G, et al. The effects of nebivolol on apoptosis in a rat infarct model. Circ J. 2008 Apr;72(4):660-70.
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Caution: Product has not been fully validated for medical applications. For research use only.

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