

Product data sheet



MedKoo Cat#: 574810 Name: Nebivolol CAS: 99200-09-6 Chemical Formula: C ₂₂ H ₂₅ F ₂ NO ₄ Exact Mass: 405.1752 Molecular Weight: 405.4418	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Nebivolol is a cardioselective beta-1 receptor blocking agent and anti-hypertensive.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100.0	246.64

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.47 mL	12.33 mL	24.66 mL
5 mM	0.49 mL	2.47 mL	4.93 mL
10 mM	0.25 mL	1.23 mL	2.47 mL
50 mM	0.05 mL	0.25 mL	0.49 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Antoine MH, Husson C, Yankep T, Mahria S, Tagliatti V, Colet JM, Nortier J. Protective Effect of Nebivolol against Oxidative Stress Induced by Aristolochic Acids in Endothelial Cells. *Toxins (Basel)*. 2022 Feb 10;14(2):132. doi: 10.3390/toxins14020132. PMID: 35202159; PMCID: PMC8876861.

2. Chen Q, Jiang H, Wang Z, Cai LY, Jiang YC, Xie L, Zhou Y, Zeng X, Ji N, Shen YQ, Chen QM. Adrenergic Blockade by Nebivolol to Suppress Oral Squamous Cell Carcinoma Growth via Endoplasmic Reticulum Stress and Mitochondria Dysfunction. *Front Pharmacol*. 2021 Aug 12;12:691998. doi: 10.3389/fphar.2021.691998. PMID: 34456721; PMCID: PMC8387679.

In vivo study

1. do Vale GT, da Silva CBP, Sousa AH, Gonzaga NA, Parente JM, Araújo KM, Castro MM, Tirapelli CR. Nebivolol Prevents Up-Regulation of Nox2/NADPH Oxidase and Lipoperoxidation in the Early Stages of Ethanol-Induced Cardiac Toxicity. *Cardiovasc Toxicol*. 2021 Mar;21(3):224-235. doi: 10.1007/s12012-020-09614-1. Epub 2020 Oct 16. PMID: 33067693.

2. Oelze M, Daiber A, Brandes RP, Hortmann M, Wenzel P, Hink U, Schulz E, Mollnau H, von Sandersleben A, Kleschyov AL, Mülsch A, Li H, Förstermann U, Münzel T. Nebivolol inhibits superoxide formation by NADPH oxidase and endothelial dysfunction in angiotensin II-treated rats. *Hypertension*. 2006 Oct;48(4):677-84. doi: 10.1161/01.HYP.0000239207.82326.29. Epub 2006 Aug 28. PMID: 16940222.

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7. Bioactivity

Biological target:

Nebivolol is a selective β 1-adrenergic receptor antagonist with an IC₅₀ value of 0.8 nM.

In vitro activity

After 24 h of AA exposure, significantly reduced cell viability and intracellular ROS overproduction were observed in EAhy926 cells; both effects were counteracted by NEB (nebivolol) pretreatment. After 48 h of exposure to AA, the most prominent metabolite changes were significant decreases in arginine, glutamate, glutamine and glutathione levels, along with a significant increase in the aspartate, glycerophosphocholine and UDP-N-acetylglucosamine contents. NEB pretreatment slightly inhibited the changes in glutathione and glycerophosphocholine.

Reference: Toxins (Basel). 2022 Feb 10;14(2):132. <https://pubmed.ncbi.nlm.nih.gov/35202159/>

In vivo activity

Treatment with nebivolol (10 mg/kg/day; p.o. gavage) prevented the increase of both superoxide (O₂^{•-}) and thiobarbituric acid reactive substances (TBARS) in the left ventricle of rats chronically treated with ethanol. Nebivolol prevented ethanol-induced increase of Nox2 expression in the left ventricle.

Reference: Cardiovasc Toxicol. 2021 Mar;21(3):224-235. <https://pubmed.ncbi.nlm.nih.gov/33067693/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.