

Certificate of Analysis

Product Name: Nebivolol hydrochloride

Catalog No.: 3517

Batch No.: 1

CAS Number: 152520-56-4

IUPAC Name: (±)-[2*R**(1*S**5*S**(*S**))]-α,α'-[Iminobis(methylene)bis(6-fluoro-3,4-dihydro-2*H*-1-benzopyran-2-methanol)]

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₂₂H₂₅F₂NO₄·HCl

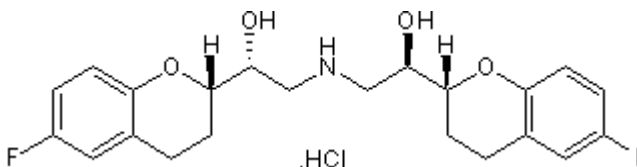
Batch Molecular Weight: 441.9

Physical Appearance: White solid

Solubility: DMSO to 100 mM
ethanol to 10 mM

Storage: Desiccate at RT

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.5% purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	59.8	5.93	3.17
Found	59.63	5.86	3.21

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Highly selective β_1 -adrenoceptor antagonist (K_i values are 0.88, 20, 44, 700, 1160, 2400 and 4000 nM at β_1 , 5-HT_{1A}, β_2 , 5-HT₂, α_1 , H₁ and D₂ receptors respectively). Induces vasodilation via a nitric oxide- and cGMP-dependent mechanism (EC_{50} = 11.36 μ M in renal arteries) and displays antihypertensive activity in vivo. GRK/ β -arrestin biased agonist at the β_2 adrenoceptor.

Physical and Chemical Properties:

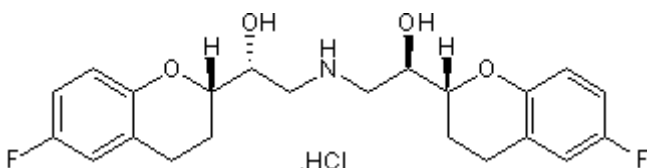
Batch Molecular Formula: C₂₂H₂₅F₂NO₄.HCl

Batch Molecular Weight: 441.9

Physical Appearance: White solid

Minimum Purity: >98%

Batch Molecular Structure:



References:

Pauwels et al (1988) The receptor binding profile of the new antihypertensive agent nebivolol and its stereoisomers compared with various β -adrenergic blockers. *Mol.Pharmacol.* **34** 843. PMID: 2462161.

Georgescu et al (2008) Nebivolol induces a hyperpolarizing effect on smooth muscle cells in the mouse renal artery by activation of beta-2-adrenoceptors. *Pharmacology* **81** 110. PMID: 17952013.

Erickson et al (2013) The β -blocker Nebivolol Is a GRK/ β -arrestin biased agonist. *PLoS One* **8** e71980. PMID: 23977191.

Storage: Desiccate at RT

Solubility & Usage Info:

DMSO to 100 mM

ethanol to 10 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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