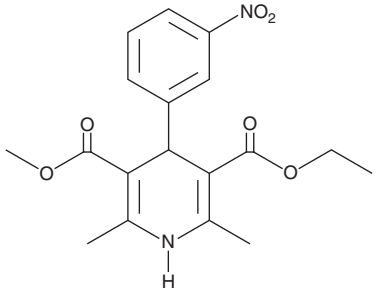
PRODUCT INFORMATION

Nitrendipine

Item No. 17549

CAS Registry No.: 39562-70-4
Formal Name: 1,4-dihydro-2,6-dimethyl-4-(3-nitrophenyl)-3,5-pyridinedicarboxylic acid, 3-ethyl 5-methyl ester
MF: $C_{18}H_{20}N_2O_6$
FW: 360.4
Purity: ≥95%
UV/Vis.: λ_{max}: 236, 353 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Nitrendipine is supplied as a crystalline solid. A stock solution may be made by dissolving the nitrendipine in the solvent of choice, which should be purged with an inert gas. Nitrendipine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of nitrendipine in these solvents is approximately 2, 25, and 30 mg/ml, respectively.

Nitrendipine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, nitrendipine should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Nitrendipine has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Nitrendipine is a dihydropyridine used as an antihypertensive agent due to its ability to block L-type and T-type calcium channels, which play key roles in excitation-contraction coupling in cardiac and vascular smooth muscle cells, producing vasodilatory actions.[1-4] It also binds to adenosine A_1, A_{2A}, and A_3 receptors with K_i values of 8.96, 23.0, and 8.3 µM, respectively.[5]

References

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2. Triggle, D.J. and Rampe, D. 1,4-Dihydropyridine activators and antagonists: Structural and functional distinctions. *Trends Pharmacol. Sci.* **10(12)**, 507-511 (1989).
3. Perez-Reyes, E., Van Deusen, A.L., and Vitko, I. Molecular pharmacology of human $Ca_v3.2$ T-type Ca^{2+} channels: Block by antihypertensives, antiarrhythmics, and their analogs. *J. Pharmacol. Exp. Ther.* **328(2)**, 621-627 (2009).
4. Sonoda, S. and Ochi, R. Independent modulation of L-type Ca^{2+} channel in guinea pig ventricular cells by nitrendipine and isoproterenol. *Jpn. Heart J.* **42(6)**, 771-780 (2001).
5. van Rhee, A.M., Jiang, J.L., Melman, N., *et al.* Interaction of 1,4-dihydropyridine and pyridine derivatives with adenosine receptors: Selectivity for A_3 receptors. *J. Med. Chem.* **39(15)**, 2980-2989 (1996).

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