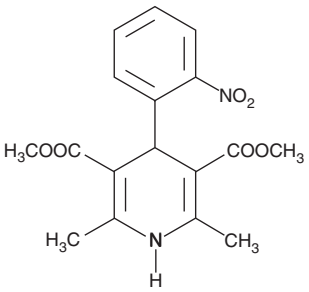
PRODUCT INFORMATION

Nifedipine

Item No. 11106

CAS Registry No.: 21829-25-4
Formal Name: 1,4-dihydro-2,6-dimethyl-4-(2-nitrophenyl)-3,5-pyridinedicarboxylic acid, 3,5-dimethyl ester
Synonym: BAY 1040
MF: $C_{17}H_{18}N_2O_6$
FW: 346.3
Purity: ≥98%
UV/Vis.: λ_{max}: 236, 334, 360 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

Nifedipine is supplied as a crystalline solid. A stock solution may be made by dissolving the nifedipine in the solvent of choice. Nifedipine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of nifedipine in ethanol is approximately 3 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Nifedipine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, nifedipine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Nifedipine has a solubility of approximately 0.1 mg/ml in a 1:10 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Nifedipine is a dihydropyridine L-type calcium channel blocker that reduces the amplitude of spontaneous contractions in isolated rabbit ileum when used at a concentration of 1 µM.[1] Nifedipine (1 µM) reduces TGF-β-induced calcium oscillations in human fibroblasts and prevents impairment of lung function in a mouse model of pulmonary fibrosis induced by bleomycin (Item No. 13877) when administered at a dose of 10 mg/kg per day.[2] It also reduces increases in mean arterial blood pressure induced by angiotensin II (Item No. 17150) in spontaneously hypertensive rats when administered at a dose of 10 µg/kg.[3] Formulations containing nifedipine have been used in the treatment of hypertension and angina.

References

1. Ragy, M. and Elbassuoni, E. The role of nitric oxide and L-type calcium channel blocker in the contractility of rabbit ileum *in vitro*. *J. Physiol. Biochem.* **68(4)**, 521-528 (2012).
2. Mukherjee, S., Ayaub, E., Murphy, J., *et al.* Disruption of calcium signaling in fibroblasts and attenuation of bleomycin-induced fibrosis by nifedipine. *Am. J. Respir. Cell Mol. Biol.* **53(4)**, 450-458 (2015).
3. Aritomi, S., Konda, T., and Yoshimura, M. L/N-type calcium channel blocker suppresses reflex aldosterone production induced by antihypertensive action. *Heart Vessels* **27(4)**, 419-423 (2012).

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