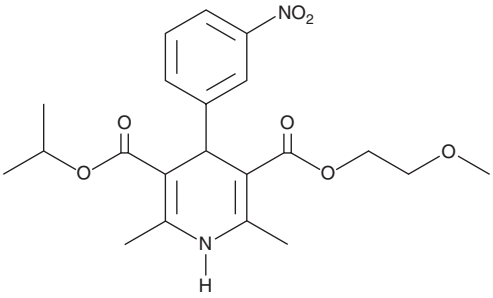
PRODUCT INFORMATION

Nimodipine

Item No. 14573

CAS Registry No.: 66085-59-4
Formal Name: 1,4-dihydro-2,6-dimethyl-4-(3-nitrophenyl)-3,5-pyridinedicarboxylic acid, 3-(2-methoxyethyl) 5-(1-methylethyl) ester
Synonym: BAY-e 9736
MF: $C_{21}H_{26}N_2O_7$
FW: 418.4
Purity: ≥98%
UV/Vis.: λ_{max}: 237, 356 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

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

Nimodipine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, nimodipine should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Nimodipine 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

Nimodipine is an inhibitor of L-type voltage-gated calcium (Ca_V) channels.[1] It is selective for $Ca_V1.2$ over $Ca_V1.3$ channels (IC_{50}s = 0.139 and 2.7 µM, respectively), as well as R-, N-, and P/Q-type Ca_V channels at 10 µM.[1,2] Nimodipine (0.72-24 nM) inhibits contractions induced by potassium, but not norepinephrine, in isolated rabbit aortic strips.[3] It increases cerebral blood flow in anesthetized dogs when administered sublingually at doses ranging from 0.01 to 1 mg/kg. Nimodipine decreases necrosis of hippocampal CA1 pyramidal neurons and reduces increases in spontaneous movement and contralateral circling in a rat model of focal cerebral ischemia induced by middle cerebral artery occlusion (MCAO).[4]

References

1. Furukawa, T., Yamakawa, T., Midera, T., *et al.* Selectivities of dihydropyridine derivatives in blocking Ca^{2+} channel subtypes expressed in *Xenopus* oocytes. *J. Pharmacol. Exp. Ther.* **291(2)**, 464-473 (1999).
2. Xu, W. and Lipscombe, D. Neuronal $Ca_V1.3α_1$ L-type channels activate at relatively hyperpolarized membrane potentials and are incompletely inhibited by dihydropyridines. *J. Neurosci.* **21(16)**, 5944-5951 (2001).
3. Kazda, S. and Towart, R. Nimodipine: A new calcium antagonistic drug with a preferential cerebrovascular action. *Acta Neurochir. (Wien)* **63(1-4)**, 259-265 (1982).
4. Babu, C.S. and Ramanathan, M. Post-ischemic administration of nimodipine following focal cerebral ischemic-reperfusion injury in rats alleviated excitotoxicity, neurobehavioural alterations and partially the bioenergetics. *Int. J. Dev. Neurosci.* **29(1)**, 93-105 (2011).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM