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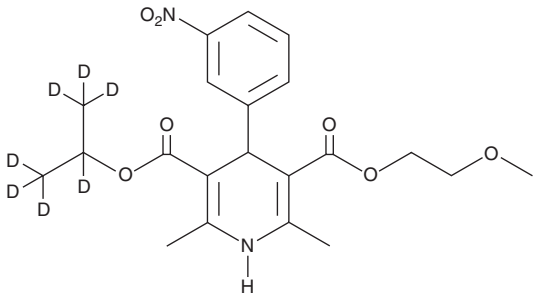
PRODUCT INFORMATION

Nimodipine-d_7

Item No. 30720

CAS Registry No.:	1246815-36-0
Formal Name:	3-(2-methoxyethyl) 5-(propan-2-yl-d_7) 2,6-dimethyl-4-(3-nitrophenyl)-1,4-dihydropyridine-3,5-dicarboxylate
MF:	$C_{21}H_{19}D_7N_2O_7$
FW:	425.5
Chemical Purity:	≥98% (Nimodipine)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_7); ≤1% d_0
Supplied as:	A solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

Nimodipine-d_7 is intended for use as an internal standard for the quantification of nimodipine (Item No. 14573) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Nimodipine-d_7 is supplied as a solid. A stock solution may be made by dissolving the nimodipine-d_7 in the solvent of choice, which should be purged with an inert gas. Nimodipine-d_7 is slightly soluble in chloroform and methanol.

Description

Nimodipine is an inhibitor of L-type voltage-gated calcium (Cav) 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 $Ca_v1.3\alpha_1$ 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).

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