

Product Data Sheet

Product Name: Manidipine-d4

Cat. No.: GC47597

Chemical Properties

Cas. No. 1189656-59-4

SMILES O=C(OC)C1=C(C)NC(C)=C(C(OC([2H])([2H])C([2H])([2H])N2CCN(C(C3=CC=CC=C3)C4=CC=CC=C4)CC2)=O)C1C5=CC([N+])([O-])=O)=CC=C5

Formula C35H34D4N4O6

M.Wt 614.7

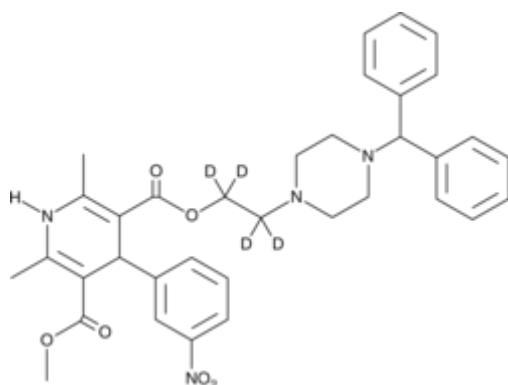
Solubility Methanol: soluble

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

Manidipine-d4 is intended for use as an internal standard for the quantification of manidipine by GC- or LC-MS. Manidipine is a dihydropyridine L- and T-type calcium channel blocker.^{1,2,3} It inhibits recombinant rabbit L-type ($\alpha_1C\alpha_2/\delta\beta_1a$) and human T-type (α_1H) calcium channels expressed in *Xenopus* oocytes and native L-type channels in dissociated guinea pig cardiac ventricular cells (IC₅₀ = 2.6 nM). Manidipine inhibits intracellular calcium increases induced by endothelin-1 in A7r5 rat vascular smooth muscle cells (ED₅₀ = 1 nM) and potassium-induced contraction of isolated dog

Caution: Product has not been fully validated for medical applications. For research use only.

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femoral and portal veins ($IC_{50}s = 24$ and 2.1 nM, respectively).^{4,5} *In vivo*, it lowers blood pressure in spontaneously hypertensive rats (SHRs) when administered at a dose of 10 mg/kg and inhibits left ventricular hypertrophy in rats induced by isoproterenol when administered at a dose of 3 mg/kg.^{6,7} Formulations containing manidipine have been used in the treatment of hypertension.

1.Furukawa, T., Nukada, T., Miura, R., et al.Differential blocking action of dihydropyridine Ca^{2+} antagonists on a T-type Ca^{2+} channel (α_1G) expressed in *Xenopus* oocytesJ. Cardiovasc. Pharmacol.45(3)241-246(2005) 2.Furukawa, T., Nukada, T., Namiki, Y., et al.Five different profiles of dihydropyridines in blocking T-type Ca^{2+} channel subtypes (Cav3.1 (α_1G), Cav3.2 (α_1H), and Cav3.3 (α_1I)) expressed in *Xenopus* oocytesEur. J. Pharmacol.613(1-3)100-107(2009) 3.Tohse, N., Takeda, Y., and Kanno, M.Voltage-dependent modulation of L-type Ca^{2+} current by manidipine in guinea-pig heart cellsEur. J. Pharmacol.249(2)231-233(1993) 4.Huang, S., Simonson, M.S., and Dunn, M.J.Manidipine inhibits endothelin-1-induced $[Ca^{2+}]_i$ signaling but potentiates endothelin's effect on c-fos and c-jun induction in vascular smooth muscle and glomerular mesangial cellsAm. Heart J.125(2 Pt 2)589-597(1993) 5.Shibouta, Y., Kitayoshi, T., Kitoh, G., et al.Calcium channel blocking action of flunarizine hydrochloride (CV-4093.2HCl) in vitro and in vivoJpn. J. Pharmacol.48(4)463-472(1988) 6.Meguro, K., Aizawa, M., Sohda, T., et al.New 1,4-dihydropyridine derivatives with potent and long-lasting hypotensive effectChem. Pharm. Bull. (Tokyo)33(9)3787-3797(1985) 7.Yoshiyama, M., Takeuchi, K., Kim, S., et al.Effect of manidipine hydrochloride, a calcium antagonist, on isoproterenol-induced left ventricular hypertrophyJpn. Circ. J.62(1)47-52(1998)

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