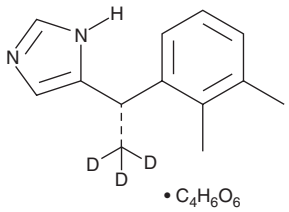
PRODUCT INFORMATION

Dexmedetomidine-d_3 (tartrate)

Item No. 43801

Formal Name:	5-[(1S)-1-(2,3-dimethylphenyl) ethyl-2,2,2-d_3]-1H-imidazole, 2R,3R-dihydroxybutanedioate
Synonym:	MPV 1440-d_3
MF:	$C_{13}H_{13}D_3N_2 \bullet C_4H_6O_6$
FW:	353.4
Chemical Purity:	≥98% (Dexmedetomidine)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as:	A 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

Dexmedetomidine-d_3 is intended for use as an internal standard for the quantification of dexmedetomidine (Item No. 39544) 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).

Dexmedetomidine-d_3 (tartrate) is supplied as a solid. A stock solution may be made by dissolving the dexmedetomidine-d_3 (tartrate) in the solvent of choice, which should be purged with an inert gas. Dexmedetomidine-d_3 (tartrate) is soluble in DMSO. Dexmedetomidine-d_3 (tartrate) is slightly soluble in acetonitrile.

Description

Dexmedetomidine is an agonist of α_2-adrenergic receptors (α_2-ARs).[1] It selectively binds to α_2-ARs over α_1-ARs (K_is = 0.015 and 5 nM, respectively). *In vivo*, dexmedetomidine (50 µg/kg) prevents increases in cardiac troponin I (CTnI), a marker of myocardial injury, as well as reduces myocardial apoptosis, pyroptosis, and ferroptosis in a mouse model of sepsis induced by cecal ligation and puncture (CLP), effects that can be reversed by the α_2-AR antagonist yohimbine (Item No. 19869).[2] Dexmedetomidine (40 µg/kg) induces sedation and decreases mechanical nociception in cats.[3] Formulations containing dexmedetomidine have been used as sedatives.

References

1. Ross, T.M., Jetter, M.C., McDonnell, M.E., *et al.* α_2 Adrenoceptor agonists as potential analgesic agents. 2. Discovery of 4-(4-imidazo)-1,3-dimethyl-6,7-dihydro-thianaphthene as a high-affinity ligand for the α_{2D} adrenergic receptor. *J. Med. Chem.* **43(7)**, 1423-1426 (2000).
2. Wang, C., Yuan, W., Hu, A., *et al.* Dexmedetomidine alleviated sepsis-induced myocardial ferroptosis and septic heart injury. *Mol. Med. Rep.* **22(1)**, 175-184 (2020).
3. Nagore, L., Soler, C., Gil, L., *et al.* Sedative effects of dexmedetomidine, dexmedetomidine-pethidine and dexmedetomidine-butorphanol in cats. *J. Vet. Pharmacol. Ther.* **6(3)**, 222-228 (2013).

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