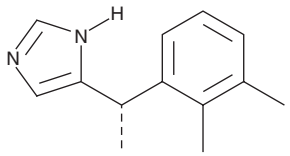
PRODUCT INFORMATION

Dexmedetomidine

Item No. 39544

CAS Registry No.: 113775-47-6
Formal Name: 5-[(1S)-1-(2,3-dimethylphenyl) ethyl]-1H-imidazole
Synonym: MPV 1440
MF: $C_{13}H_{16}N_2$
FW: 200.3
Purity: ≥98%
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 is supplied as a solid. A stock solution may be made by dissolving the dexmedetomidine in the solvent of choice, which should be purged with an inert gas. Dexmedetomidine is soluble in DMSO. Dexmedetomidine is slightly soluble in acetonitrile.

Dexmedetomidine is slightly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

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. This product is also available as an analytical reference standard (Item No. 38806).

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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