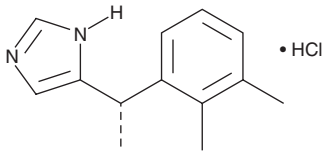
PRODUCT INFORMATION

Dexmedetomidine (hydrochloride)

Item No. 15581

CAS Registry No.: 145108-58-3
Formal Name: 5-[(1S)-1-(2,3-dimethylphenyl)ethyl]-1H-imidazole, monohydrochloride
Synonyms: Dex, Precedex
MF: $C_{13}H_{16}N_2 \bullet HCl$
FW: 236.7
Purity: ≥99%
UV/Vis.: λ_{max}: 214 nm
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 (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the dexmedetomidine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Dexmedetomidine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of dexmedetomidine (hydrochloride) in ethanol is approximately 30 mg/ml and approximately 25 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of dexmedetomidine (hydrochloride) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of dexmedetomidine (hydrochloride) in PBS, pH 7.2, is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Dexmedetomidine is the (S)-enantiomer of medetomidine, an imidazole compound that binds to α_2-adrenoceptors (K_i = 1.08 nM) with high affinity and selectivity compared to that of α_1-adrenoceptors (K_i = 1.8 µM).[1] Dexmedetomidine produces analgesic, sedative, and anxiolytic effects through both presynaptic activation of α_2-adrenoceptors, which inhibits norepinephrine release, and postsynaptic activation of α_2-adrenoceptors, which inhibits sympathetic activity and decreases blood pressure and heart rate.[2,3]

References

1. Virtanen, R., Savola, J.M., Saano, V., *et al.* Characterization of the selectivity, specificity and potency of medetomidine as an α_2-adrenoceptor agonist. *Eur. J. Pharmacol.* **150(1-2)**, 9-14 (1988).
2. Gertler, R., Brown, H.C., Mitchell, C.H., *et al.* Dexmedetomidine: A novel sedative-analgesic agent. *Proc. (Bayl. Univ. Med. Cent.)* **14(1)**, 13-21 (2001).
3. Bajwa, S. and Kulshrestha, A. Dexmedetomidine: An adjuvant making large inroads into clinical practice. *Ann. Med. Health Sci. Res.* **3(4)**, 475-483 (2013).

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