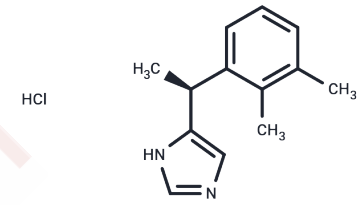
Data Sheet (Cat.No.T6466)

TargetMol

Dexmedetomidine hydrochloride

Chemical Properties



CAS No. : 145108-58-3

Formula: C13H16N2·HCl

Molecular Weight: 236.74

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Dexmedetomidine hydrochloride (Precedex) is a potent, selective, orally active α2-adrenoceptor agonist with a Ki value of 1.08 nM. It shows 1620-fold selectivity over α1-adrenoceptors. Dexmedetomidine hydrochloride (Precedex) can protect against sepsis-induced acute lung injury through anti-inflammatory, anti-oxidative, and anti-apoptotic effects.
Targets(IC50)	Adrenergic Receptor
In vitro	**METHODS**: NR8383 alveolar macrophages were stimulated with 10 μg/ml LPS for 24 hours and then treated with Dexmedetomidine hydrochloride (Precedex) (0.01, 0.1, 1, 10, 50 μM, 2 hours) for another 2 hours. CCK-8 assay was used to evaluate the effect of different concentrations of Dexmedetomidine hydrochloride (Precedex) pretreatment on the viability of LPS-treated NR8383 cells. **RESULTS** Cell viability gradually increased with increasing concentrations of Dexmedetomidine hydrochloride (Precedex). [1]
In vivo	**METHODS**: Using C57BL/6J mice exposed to LPS, we investigated whether Dexmedetomidine hydrochloride (Precedex) (50 μg/kg, intraperitoneal injection) provides lung protection by regulating mitochondrial dynamics via the HIF-1a/HO-1 pathway in vivo. **RESULTS** Dexmedetomidine hydrochloride (Precedex) alleviated lung pathological damage, reduced the oxidative stress index (OSI), improved mitochondrial dysfunction, upregulated the expression of HIF-1α and HO-1, and was accompanied by a shift in mitochondrial dynamics to fusion. [1]
Kinase Assay	In vitro HDAC assay:HDAC activity is analyzed by using an HDAC assay kit. This assay is based on the ability of DU-145 nuclear extract, which is rich in HDAC activity, to mediate the deacetylation of the biotinylated [3H]-acetyl histone H4 peptide that is bound to streptavidin agarose beads. The release of [3H]-acetate into the supernatant is measured to calculate the HDAC activity. Sodium butyrate (0.25-1 mM) is used as a positive control.

Solubility Information

Solubility	DMSO: 55 mg/mL (232.32 mM),Sonication is recommended. H2O: 23.7 mg/mL (100.11 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.224 mL	21.1202 mL	42.2404 mL
5 mM	0.8448 mL	4.224 mL	8.4481 mL
10 mM	0.4224 mL	2.112 mL	4.224 mL
50 mM	0.0845 mL	0.4224 mL	0.8448 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Shi J, et al. Dexmedetomidine ameliorates endotoxin-induced acute lung injury in vivo and in vitro by preserving mitochondrial dynamic equilibrium through the HIF-1a/HO-1 signaling pathway. Redox Biol. 2021 May;41:101954.
Virtanen R, et al. Characterization of the selectivity, specificity and potency of medetomidine as an alpha 2-adrenoceptor agonist. Eur J Pharmacol. 1988 May 20;150(1-2):9-14.
Gertler R, et al. Dexmedetomidine: a novel sedative-analgesic agent. Proc (Bayl Univ Med Cent). 2001 Jan;14(1):13-21.

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