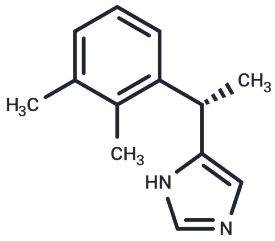
Data Sheet (Cat.No.T2524)

TargetMol

Dexmedetomidine

Chemical Properties



CAS No. : 113775-47-6

Formula: C13H16N2

Molecular Weight: 200.28

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Dexmedetomidine is a Central alpha-2 Adrenergic Agonist. The mechanism of action of dexmedetomidine is as an Adrenergic alpha2-Agonist. The physiologic effect of dexmedetomidine is by means of General Anesthesia.
Targets(IC50)	Adrenergic Receptor
In vitro	Dexmedetomidine has a relatively high ratio of α2/α1-activity (1620:1 as compared with 220:1 for clonidine) and, therefore, is considered a full agonist of the α2 receptor. This may result in more potent effects of sedation without unwanted cardiovascular effects from α1 receptor activation. The 2-h half-life of dexmedetomidine is nearly 4-fold shorter than that of clonidine, which increases the likelihood that a continuous infusion of dexmedetomidine might be useful for sedation. Dexmedetomidine also has minimum alveolar anesthetic concentration (MAC)-sparing properties, but its use as an anesthetic adjuvant has been complicated by persistent hypotension that has mandated IV fluid administration and vasopressor administration. In addition, its use in large doses is complicated by hypertension from α2 receptor-mediated vascular constriction.

Solubility Information

Solubility	DMSO: 40 mg/mL (199.72 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (9.99 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.993 mL	24.965 mL	49.9301 mL
5 mM	0.9986 mL	4.993 mL	9.986 mL
10 mM	0.4993 mL	2.4965 mL	4.993 mL
50 mM	0.0999 mL	0.4993 mL	0.9986 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Virtanen R, et al. Eur J Pharmacol, 1988, 150(1-2), 9-14.
Zhu Y X, Zhou J H, Li G W, et al. Dexmedetomidine protects liver cell line L-02 from oxygen-glucose deprivation-induced injury by down-regulation of microRNA-711. European Review for Medical and Pharmacological Sciences. 2018 Oct;22(19):6507-6516
Hou Z, Yang F, Chen K, et al.hUC-MSC-EV-miR-24 enhances the protective effect of dexmedetomidine preconditioning against myocardial ischemia-reperfusion injury through the KEAP1/Nrf2/HO-1 signaling.Drug Delivery and Translational Research.2023: 1-15.
Jalonen J, et al. Anesthesiology, 1997, 86(2), 331-345.
Zhu Y X, Zhou J H, Li G W, et al. Dexmedetomidine protects liver cell line L-02 from oxygen-glucose deprivation-induced injury by down-regulation of microRNA-711[J]. European review for medical and pharmacological sciences. 2018 Oct;22(19):6507-6516.
Zhang Q, Huang Y, Gong C, et al.Dexmedetomidine attenuates inflammation and organ injury partially by upregulating Nur77 in sepsis.Immunity, Inflammation and Disease.2023, 11(6): e883.
Ren W, Chen J, Wang W, et al.Sympathetic nerve-enteroendocrine L cell communication modulates GLP-1 release, brain glucose utilization, and cognitive function.Neuron.2024