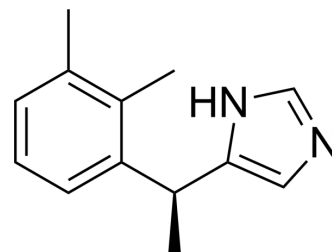


## Dexmedetomidine

Cat. No.:	HY-12719
CAS No.:	113775-47-6
Molecular Formula:	C <sub>13</sub> H <sub>16</sub> N <sub>2</sub>
Molecular Weight:	200.28
Target:	Adrenergic Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

In Vitro	DMSO : 125 mg/mL (624.13 mM; Need ultrasonic)						
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg	
				1 mM	4.9930 mL	24.9650 mL	49.9301 mL
				5 mM	0.9986 mL	4.9930 mL	9.9860 mL
				10 mM	0.4993 mL	2.4965 mL	4.9930 mL
Please refer to the solubility information to select the appropriate solvent.							
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (10.39 mM); Clear solution						
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (10.39 mM); Clear solution						
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (10.39 mM); Clear solution						

### BIOLOGICAL ACTIVITY

Description	Dexmedetomidine ((+)-Medetomidine) is a potent, selective and orally active agonist of α <sub>2</sub> -adrenoceptor, with a K <sub>i</sub> of 1.08 nM. Dexmedetomidine shows 1620-fold selectivity against α <sub>1</sub> -adrenoceptor. Dexmedetomidine exhibits anxiolysis, sedation, and modest analgesia effects <sup>[1][2][3]</sup> .
IC <sub>50</sub> & Target	α <sub>2</sub> -adrenergic receptor 1.08 nM (K <sub>i</sub> )
In Vitro	Medetomidine has high selectivity for α <sub>2</sub> adrenoceptors (K <sub>i</sub> =1.08 nM) over α <sub>1</sub> adrenoceptors (K <sub>i</sub> =1750 nM) in rat brain membranes <sup>[1]</sup> .

?Medetomidine (0.1-100 nM) inhibits the twitch response in field-stimulated mouse vas deferens, with a  $pD_2$  of 9.0<sup>[1]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### In Vivo

Medetomidine (10-100  $\mu$ g/kg; i.v. at 5-min intervals) produces a dose-dependent pupillary dilatation in pentobarbitone-anaesthetized rats<sup>[1]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female Sprague-Dawley rats (270-350 g) <sup>[1]</sup>
Dosage:	1, 5, 10, 50, 100 mg/kg
Administration:	I.v. at 5-min intervals
Result:	Produced the pupil dilatation of 2.5 mm (approximately half of the maximum effect) at the cumulative dose of 4 $\mu$ g/kg.

## CUSTOMER VALIDATION

- Nat Commun. 2023 Jul 7;14(1):4011.
- Biomed Pharmacother. 2023 Nov 23;169:115915.
- Cardiovasc Drugs Ther. 2023 Jul 1.
- Eur J Neurosci. 2021 Nov 4.
- J Neuropathol Exp Neurol. 2022 Jul 11;nlac055.

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## REFERENCES

- [1]. 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.
- [2]. Gertler R, et, al. Dexmedetomidine: a novel sedative-analgesic agent. Proc (Bayl Univ Med Cent). 2001 Jan;14(1):13-21.
- [3]. Sajid B, et, al. A comparison of oral dexmedetomidine and oral midazolam as premedicants in children. J Anaesthesiol Clin Pharmacol. Jan-Mar 2019;35(1):36-40.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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