# **Product data sheet**



MedKoo Cat#: 326784				
Name: Medetomidine HCl				
CAS: 86347-15-1 (HCl)				
Chemical Formula: $C_{13}H_{17}CIN_2$				
Molecular Weight: 236.743				
Product supplied as:	Powder			
Purity (by HPLC):	$\geq 98\%$			
Shipping conditions	Ambient temperature			
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.			
	In solvent: -80°C 3 months; -20°C 2 weeks.			



#### 1. Product description:

Medetomidine, also known as MPV-785, is a synthetic drug used as both a surgical anesthetic and analgesic. It is an alpha-2 adrenergic agonist that can be administered as an intravenous drug solution with sterile water. It is currently approved for dogs in the United States. Medetomidine is a racemic mixture of two stereoisomers; dexmedetomidine is the isomer with more useful effects, and is now marketed as Dexdomitor. Medetomidine can be used as an antifouling substance in marine paint. It is mainly effective against barnacles.

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

#### 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM		
DMF	25.0	105.60		
DMSO	45.67	192.90		
Ethanol	59.0	249.22		
PBS (pH 7.2)	2.0	8.45		
Water	48.5	204.86		

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.22 mL	21.12 mL	42.24 mL
5 mM	0.84 mL	4.22 mL	8.45 mL
10 mM	0.42 mL	2.11 mL	4.22 mL
50 mM	0.08 mL	0.42 mL	0.84 mL

## 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

## 6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

 Ribeiro PO, Antunes LM, Nunes CS, Silva HB, Cunha RA, Tomé ÂR. The Effects of Different Concentrations of the α2-Adrenoceptor Agonist Medetomidine on Basal Excitatory Synaptic Transmission and Synaptic Plasticity in Hippocampal Slices of Adult Mice. Anesth Analg. 2015 May;120(5):1130-1137. doi: 10.1213/ANE.00000000000636. PMID: 25658314.
Jager LP, De Graaf GJ, Widjaja-Greefkes HC. Effects of atipamezole, detomidine and medetomidine on release of steroid hormones by porcine adrenocortical cells in vitro. Eur J Pharmacol. 1998 Apr 3;346(1):71-6. doi: 10.1016/s0014-2999(98)00044-2. PMID: 9617754.

In vivo study

1. Kuo WC, Keegan RD. Comparative cardiovascular, analgesic, and sedative effects of medetomidine, medetomidinehydromorphone, and medetomidine-butorphanol in dogs. Am J Vet Res. 2004 Jul;65(7):931-7. doi: 10.2460/ajvr.2004.65.931. PMID: 15281651.

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2. Yakoub LK, Mohammad FK. Medetomidine protection against diazinon-induced toxicosis in mice. Toxicol Lett. 1997 Sep 19;93(1):1-8. doi: 10.1016/s0378-4274(97)00070-2. PMID: 9381477.

### 7. Bioactivity

Biological target:

Medetomidine hydrochloride is an orally active α2-adrenoceptor agonist (K<sub>i</sub>: 1.08 nM).

#### In vitro activity

The 4-substituted imidazole type alpha2-adrenoceptor ligands atipamezole, detomidine, and medetomidine were screened for actions on the release of aldosterone by a suspension of porcine adrenocortical cells with deoxycorticosterone (1 microM) as substrate. The sedative alpha2-adrenoceptor agonists medetomidine and detomidine also inhibited aldosterone release (range 10-1000 nM).

Reference: Eur J Pharmacol. 1998 Apr 3;346(1):71-6. https://pubmed.ncbi.nlm.nih.gov/9617754/

#### In vivo activity

Administration of medetomidine, medetomidine-hydromorphone, and medetomidine-butorphanol was associated with increases in SAP, MAP, DAP, MPAP, PCWP, CVP, SVR, PVR, core body temperature, and PaCO2 and decreases in HR, CO, CI, SV, SI, RR, pH, and PaO2 in dogs.

Reference: Am J Vet Res. 2004 Jul;65(7):931-7. https://pubmed.ncbi.nlm.nih.gov/15281651/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.