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产品名称：1-[(2,3-dihydro-1,4-benzodioxin-2-yl)methyl]piperidinium chloride

产品别名：盐酸吡哌咯生 ；Piperoxan hydrochloride；Benodaine hydrochloride

生物活性：

Description	Piperoxan hydrochloride is an α_2 adrenoceptor antagonist.
IC_{50} & Target	adrenoceptor[1]
In Vitro	When the medulla is superfused with α_2 adrenoceptor antagonist Piperoxane (50 μM; 5 min) while the pons is with artificial cerebrospinal fluid (ACSF), the three inactive preparations display rhythmic phrenic bursts at a low frequency (2-4 c/min), and the phrenic burst frequency of the 12 active ones significantly increases during the last 3 min of Piperoxane applications (163±12% of the previous mean frequency). In active medullary preparations, the effects of NA applications (25 μM; 5 min) are compared when the preparations sre superfused either by ACSF (n=8) or by the α2 adrenoceptor antagonist Piperoxane (50 μM; PIP-ACSF; n=5). NA applications either alone (NA-ACSF) or with Piperoxane (PIP-ACSF+NA) significantly increases the phrenic burst frequency. However, the blockage of the medullary α2 adrenoceptors by Piperoxane potentiates a phrenic burst frequency increase: during the fifth minute of NA applications, the phrenic burst frequency reached 171±11% of the mean control value when ACSF is applied alone and 234±21% of the mean control value when PIP-ACSF is applied in control condition[1].
Solvent&Solubility	***In Vitro:*** **DMSO : ≥ 31 mg/mL (114.91 mM)** * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.7069 mL	18.5343 mL	37.0686 mL
	5 mM	0.7414 mL	3.7069 mL	7.4137 mL
	10 mM	0.3707 mL	1.8534 mL	3.7069 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

References	[1]. Viemari JC, et al. Nasal trigeminal inputs release the A5 inhibition received by the respiratory rhythm generator of the mouse neonate. J Neurophysiol. 2004 Feb;91(2):746-58. [2]. Bentley GA, et al. The antinociceptive action of some beta-adrenoceptor agonists in mice. Br J Pharmacol. 1986 Jul;88(3):515-21.

实验参考：

Animal Administration	Mice[2] Male Balb-C mice are used, weighing between 20 and 25 g. In mice pretreated with the α-adrenoceptor antagonist Piperoxan, or with naloxone, both at a dose of 3×10^{-5} mol /kg s.c. given 15 min before the acetic acid, the antinociceptive action of (-)-isoprenaline is only slightly

	antagonized. Dose-ratios of 1.45 and 1.7, are produced by these two antagonists.
Kinase Assay	The mouse neonates (P0-P3) are ether-anesthetized and decerebrated; the brain stems and the cervical spinal cords are dissected out and placed ventral sides up in a 2 mL chamber superfused with artificial cerebrospinal fluid (ACSF) at 27±0.25°C (mean±SD), renewed at a rate of 2 mL/min. The ACSF [containing (in mM) 129 NaCl, 3.35 KCl, 1.26 $CaCl_2$, 1.15 $MgCl_2$, 21 $NaHCO_3$, 0.58 NaH_2PO_4, and 30 glucose] is oxygenated and equilibrated (pH 7.4 at 27°C) by bubbling carbogene (95% O_2-5% CO_2). In the pharmacological experiments, this is replaced by another ACSF in which bioreactive substances are dissolved: noradrenaline at 25 µM (NA-ACSF) or α2 adrenoceptor antagonists, either Piperoxane at 50 µM (PIP-ACSF) or yohimbine at 50 µM (YO-ACSF). In some of the experiments, a patch-clamp microelectrode (1 µm diameter tip) is lowered within the ventral pons into the A5 nucleus where a solution of either ACSF or NA (1 mM) is pressure-ejected. The ejected volume is estimated 20 nL for a pressure pulse lasting 2 s[1].
References	[1]. Viemari JC, et al. Nasal trigeminal inputs release the A5 inhibition received by the respiratory rhythm generator of the mouse neonate. J Neurophysiol. 2004 Feb;91(2):746-58. [2]. Bentley GA, et al. The antinociceptive action of some beta-adrenoceptor agonists in mice. Br J Pharmacol. 1986 Jul;88(3):515-21.