# Viloxazine hydrochloride

**Cat. No.:** HY-125784

**CAS No.:** 35604-67-2

**Molecular Formula:** $C_{13}H_{20}ClNO_3$

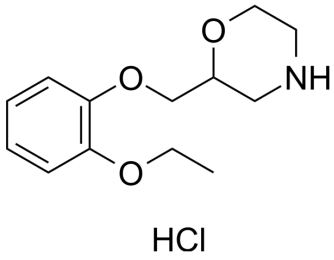
**Molecular Weight:** 273.76

**Target:** 5-HT Receptor

**Pathway:** GPCR/G Protein; Neuronal Signaling

**Storage:** 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 33.33 mg/mL (121.75 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 3.6528 mL | 18.2642 mL | 36.5283 mL |
| | 5 mM | 0.7306 mL | 3.6528 mL | 7.3057 mL |
| | 10 mM | 0.3653 mL | 1.8264 mL | 3.6528 mL |

Please refer to the solubility information to select the appropriate solvent.

## BIOLOGICAL ACTIVITY

**Description**

Viloxazine hydrochloride is a non-brain-penetrant, selective norepinephrine transporter (NET) inhibitor ($IC_{50}$=0.26 μM) and 5-HT receptor modulator. Viloxazine antagonizes 5-HT2B receptors ($K_i$=4.2 μM) and agonizes 5-HT2C receptors ($EC_{50}$=32 μM), respectively, and enhances 5-HT neurotransmission by modulating 5-HT2B/C receptors. Viloxazine also competitively inhibits NET from increasing NE and DA levels in the synaptic cleft, and can be used in the study of attention deficit hyperactivity disorder (ADHD)[1][2][3].

**In Vitro**

Viloxazine hydrochloride (10 μM; kinase binding assay) significantly inhibits 7 out of 132 targets, including NET, 5-$HT_{2B}$, 5-$HT_{2C}$, 5-$HT_{1B}$, 5-$HT_7$, $ADR_{\alpha 1A}$, $ADR_{\alpha 1B}$ receptors, with the highest selectivity for NET (inhibition rate>50%)[1].

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

**In Vivo**

Viloxazine hydrochloride (50 mg/kg; i.p.; single injection) significantly increases NE, DA, and 5-HT levels in the prefrontal cortex (PFC), nucleus accumbens (Acb), and amygdala (Amg) in Sprague-Dawley rats[1].

Viloxazine hydrochloride (1-30 mg/kg; i.p.; single injection) dose-dependently increases NE and 5-HT levels in the PFC and inhibited the NE metabolite DHPG in Sprague-Dawley rats, but had no significant effect on DA[2].

The median lethal dose (LD50) of Viloxazine hydrochloride in different animals is 500-1000 mg/kg (po, mouse), 2000 mg/kg

(po, rat), and 60 mg/kg (iv, mouse)[3].

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|---|---|
| Animal Model: | Sprague-Dawley rats (male, 300-400 g, 7-8 weeks; naïve model)[1] |
| Dosage: | 50 mg/kg (0.9% NaCl) |
| Administration: | Intraperitoneal injection, single |
| Result: | Increased extracellular NE, DA, and 5-HT in the PFC, Acb, and Amg. Resulted peak responses at 60 min post-injection (NE: 649%, DA: 670%, 5-HT: 506% of baseline). |

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|---|---|
| Animal Model: | Sprague-Dawley rats (male, 300-400 g, 7-8 weeks; naïve model)[2] |
| Dosage: | 1, 3, 10, 30 mg/kg (0.9% NaCl) |
| Administration: | Intraperitoneal injection, single dose. |
| Result: | Dose-dependently increased NE (30 mg/kg: 545% of baseline) and 5-HT (30 mg/kg: 197.9% of baseline) in the PFC.<br>Decreased DHPG levels significantly at 10 and 30 mg/kg, without changed DA levels. |

## REFERENCES


[1]. Yu C, et al. New Insights into the Mechanism of Action of Viloxazine: Serotonin and Norepinephrine Modulating Properties. J Exp Pharmacol. 2020 Aug 25;12:285-300.

[2]. Garcia-Olivares J, et al. Viloxazine Increases Extracellular Concentrations of Norepinephrine, Dopamine, and Serotonin in the Rat Prefrontal Cortex at Doses Relevant for the Treatment of Attention-Deficit/Hyperactivity Disorder. J Exp Pharmacol. 2024 Jan 16;16:13-24.

[3]. Findling RL, et al. Viloxazine in the Management of CNS Disorders: A Historical Overview and Current Status. CNS Drugs. 2021 Jun;35(6):643-653.





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