Atomoxetine hydrochloride

Cat. No.: HY-17385

CAS No.: 82248-59-7

Molecular Formula: $C_{17}H_{22}ClNO$

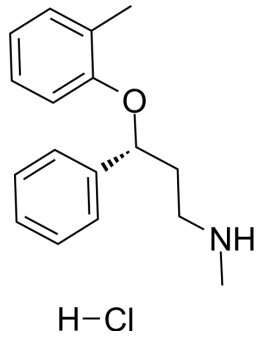
Molecular Weight: 291.82

Target: Adrenergic Receptor; Serotonin Transporter; Sodium Channel

Pathway: GPCR/G Protein; Neuronal Signaling; Membrane Transporter/Ion Channel

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 : ≥ 100 mg/mL (342.68 mM)

H_2O : 50 mg/mL (171.34 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	3.4268 mL	17.1338 mL	34.2677 mL
	5 mM	0.6854 mL	3.4268 mL	6.8535 mL
	10 mM	0.3427 mL	1.7134 mL	3.4268 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 8.33 mg/mL (28.54 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (8.57 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.57 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.57 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Atomoxetine (Tomoxetine) hydrochloride is a selective noradrenaline reuptake inhibitor with K_i values of 5 nM, 77 nM and 1451 nM for norepinephrine (NE), serotonin (5-HT) and dopamine (DA) transporters, respectively. Atomoxetine hydrochloride is a potent Na^+ channels (VGSCs) blocker. Atomoxetine hydrochloride can be used for attention-deficit hyperactivity disorder (ADHD) research[1][2][3].

In Vitro	Atomoxetine (Tomoxetine) (1-100 μM; 0.5-20 seconds; tsA201 cells) hydrochloride interacts with the human heart muscle sodium channel ($hNa_v1.5$) in a state and dose-dependent manner[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Atomoxetine (0.3-3 mg/kg; i.p.; 0-4 hours; male Sprague-Dawley rats) hydrochlorideincreases extracellular norepinephrine and dopamine by 3-fold and increases Fos expression in the rat prefrontal cortex[1]. Atomoxetine (0.1-5 mg/kg; i.p. and p.o; for 14 days; spontaneously hypertensive rat) hydrochloride can improve behaviors associated with ADHD in rats[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague-Dawley rats[1]
Dosage:	0.3, 1 and 3 mg/kg
Administration:	Intraperitoneal injection; for 4 hours
Result:	Increased the number of cells expressing Fos-like immunoreactivity in PFC 3.7-fold and increased extracellular norepinephrine and dopamine by 3-fold.

Animal Model:	Spontaneously hypertensive rat (SHR)[3]
Dosage:	0.1, 0.3, 1.25 and 5.0 mg/kg
Administration:	Intraperitoneal injection and oral administration; for 14 days
Result:	Had non-impact on the measurement of motor activity.

CUSTOMER VALIDATION

- Brain Behav Immun. 2021 Jan 4;S0889-1591(20)32487-9.
- Behav Brain Res. 28 October 2021, 113642.
- School of Pharmacy & Pharmaceutical Sciences Trinity College Institute of Neuroscience Trinity College, University of Dublin. 2019 Mar.

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REFERENCES

[1]. Turner M, et, al. Effects of atomoxetine on locomotor activity and impulsivity in the spontaneously hypertensive rat. Behav Brain Res. 2013 Apr 15;243:28-37.

[2]. Föhr KJ, et, al. Block of Voltage-Gated Sodium Channels by Atomoxetine in a State- and Use-dependent Manner. Front Pharmacol. 2021 Feb 25;12:622489.

[3]. Bymaster FP, et, al. Atomoxetine increases extracellular levels of norepinephrine and dopamine in prefrontal cortex of rat: a potential mechanism for efficacy in attention deficit/hyperactivity disorder. Neuropsychopharmacology. 2002 Nov;27(5):699-711.

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

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