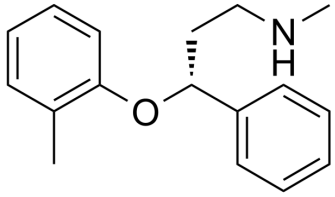
Atomoxetine

Cat. No.:	HY-107370
CAS No.:	83015-26-3
Molecular Formula:	$C_{17}H_{21}NO$
Molecular Weight:	255.35
Target:	Serotonin Transporter; Sodium Channel
Pathway:	Neuronal Signaling; Membrane Transporter/Ion Channel
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Atomoxetine (Tomoxetine) is a selective noradrenaline reuptake inhibitor with K_i values of 5, 77 and 1451 nM for norepinephrine (NE), serotonin (5-HT) and dopamine (DA) transporters, respectively. Atomoxetine (Tomoxetine) increases of DA_{EX} and NE_{EX} in the PFC and enhances catecholaminergic neurotransmission. Atomoxetine (Tomoxetine) is a potent Na^+ channels (VGSCs) blocker. Atomoxetine (Tomoxetine) 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) 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 (Tomoxetine) (0.3-3 mg/kg; i.p.; 0-4 hours; male Sprague-Dawley rats) increases extracellular norepinephrine and dopamine by 3-fold and increases Fos expression in the rat prefrontal cortex[1].

Atomoxetine (Tomoxetine) (0.1-5 mg/kg; i.p. and p.o; for 14 days; spontaneously hypertensive rat) 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.

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