Escitalopram

Cat. No.: HY-14258

CAS No.: 128196-01-0

Molecular Formula: $C_{20}H_{21}FN_2O$

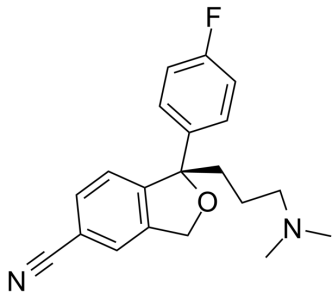
Molecular Weight: 324.39

Target: Serotonin Transporter

Pathway: Neuronal Signaling

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (308.27 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0827 mL	15.4135 mL	30.8271 mL
	5 mM	0.6165 mL	3.0827 mL	6.1654 mL
	10 mM	0.3083 mL	1.5414 mL	3.0827 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.71 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.71 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.71 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Escitalopram ((S)-Citalopram), the S-enantiomer of racemic Citalopram, is a selective serotonin reuptake inhibitor (SSRI) with a K_i of 0.89 nM. Escitalopram has ~30 fold higher binding affinity than its R(-)-enantiomer and shows selectivity over both dopamine transporter (DAT) and norepinephrine transporter (NET). Escitalopram is an antidepressant for the research of major depression[1][2].

IC_{50} & Target

Ki: 0.89 nM (serotonin transporter), 10500 nM (DAT), 8150 nM (NET)[1]

In Vivo

Escitalopram (10 mg/kg; i.p.; daily for 28 days) ameliorates cognitive impairments and selectively attenuates phosphorylated tau accumulation in stressed rats[3].
Chronic administration of Escitalopram (daily; drinking water for a total of 4 months) significantly reduces plaque load by 28% and 34% at 2.5 and 5 mg/d, respectively [4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague-Dawley rats[3]
Dosage:	10 mg/kg
Administration:	I.p.; daily for 28 days
Result:	Could selectively decrease phosphorylated tau accumulation in the hippocampus of stressed rats and could distinctly alleviate the hyperactivity of the HPA axis in both depressive and resistant rats.

Animal Model:	APP-PS1 hemizygous female mice (4 months of age)[4]
Dosage:	2.5-5 mg/kg
Administration:	Daily; drinking water for a total of 4 months
Result:	At both doses significantly reduced plaque burden within the brains of these mice compared to littermate controls that drank only water. Hippocampal plaque load was significantly reduced by 28.7% and 34.4 % for ESC 2.5 mg/day and 5 mg/day, respectively.

CUSTOMER VALIDATION

- Phytomedicine. 2023 Dec, 121, 155083.
- Mol Neurobiol. 2022 Mar 1.
- J Clin Psychopharmacol. 2021 Jun 11.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Zhang, P., et al., Structure-activity relationships for a novel series of citalopram (1-(3-(dimethylamino)propyl)-1-(4-fluorophenyl)-1,3-dihydroisobenzofuran-5-carbon itrile) analogues at monoamine transporters. J Med Chem, 2010. 53(16): p. 6112-21.

[2]. Pastoor, D. and J. Gobburu, Clinical pharmacology review of escitalopram for the treatment of depression. Expert Opin Drug Metab Toxicol, 2014. 10(1): p. 121-8.

[3]. Wu C , et al. Escitalopram alleviates stress-induced Alzheimer's disease-like tau pathologies and cognitive deficits by reducing hypothalamic-pituitary-adrenal axis reactivity and insulin/GSK-3β signal pathway activity. Neurobiol Aging. 2018;67:137-147.

[4]. Cirrito JR, et al. Effect of escitalopram on Aβ levels and plaque load in an Alzheimer mouse model. Neurology. 2020;95(19):e2666-e2674.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA