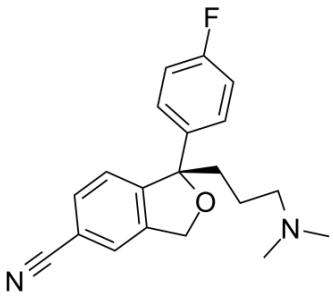
Escitalopram

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:	Please store the product under the recommended conditions in the Certificate of Analysis.



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.

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.

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