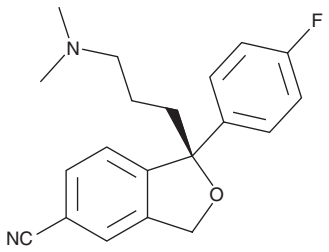
PRODUCT INFORMATION

Escitalopram

Item No. 22405

CAS Registry No.:	128196-01-0
Formal Name:	(1S)-1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile
Synonym:	(S)-Citalopram
MF:	$C_{20}H_{21}FN_2O$
FW:	324.4
Purity:	≥98%
UV/Vis.:	λ_{max}: 241 nm
Supplied as:	A solution in ethanol
Storage:	-20°C
Stability:	≥2 year



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Escitalopram is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of escitalopram in these solvents is approximately 33 and 25 mg/ml, respectively.

Escitalopram is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the ethanolic solution of escitalopram should be diluted with the aqueous buffer of choice. Escitalopram has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method.

Description

Escitalopram is a selective serotonin (5-HT) reuptake inhibitor (SSRI) and the (S) isomer of citalopram (Item No. 14572) and (R)-citalopram.[1] It selectively binds to SERT (K_i = 0.89 nM) over the norepinephrine and dopamine transporters (K_is = >10,000 and 8,150 nM, respectively) and inhibits 5-HT reuptake in rat brain synaptosomes (IC_{50} = 2.1 nM).[2,3] Escitalopram reduces immobility in the forced swim test in mice (ED_{50} = 12 mg/kg), indicating anti-depressant-like activity, and increases exploratory behavior in the black-and-white box test in mice with a minimal effective dose (MED) of 0.49 mg/kg, indicating anxiolytic-like activity.[4] Escitalopram (20 µM) prevents acid sphingomyelinase activation and subsequent ceramide release induced by infection with replication-deficient vesicular stomatitis virus pseudoviral particles (pp-VSV) presenting the severe acute respiratory coronavirus 2 (SARS-CoV-2) spike protein in Vero cells, an effect that can be overcome with exogenous application of C16 ceramide (Item No. 10681).[5] Formulations containing escitalopram have been used in the treatment of major depressive disorder (MDD) and generalized anxiety disorder (GAD).

References

1. Höschl, C. and Svestka, J. *Expert Rev. Neurother.* **8(4)**, 537-552 (2008).
2. Zhang, P., Cyriac, G., Kopajtic, T., *et al. J. Med. Chem.* **53(16)**, 6112-6121 (2010).
3. Sánchez, C., Bøgesø, K.P., Ebert, B., *et al. Psychopharmacology (Berl)* **174(2)**, 163-176 (2004).
4. Sánchez, C., Bergqvist, P.B.F., Brennum, L.T., *et al. Psychopharmacol. (Berl).* **167(4)**, 353-362 (2003).
5. Carpinteiro, A., Edwards, M.J., Hoffmann, M., *et al. Cell Rep. Med.* **1(8)**, 100142 (2020).

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