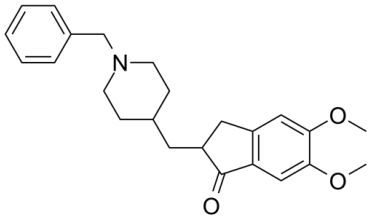
Data Sheet

Product Name:	Donepezil
Cat. No.:	CS-2866
CAS No.:	120014-06-4
Molecular Formula:	C24H29NO3
Molecular Weight:	379.49
Target:	AChE
Pathway:	Neuronal Signaling
Solubility:	DMSO : 33.33 mg/mL (87.83 mM; Need ultrasonic); H2O : < 0.1 mg/mL (insoluble)



BIOLOGICAL ACTIVITY:

Donepezil (E2020 free base) is a specific and potent **AChE** inhibitor with **IC_{50}**s of 8.12 nM and 11.6 nM for bAChE and hAChE, respectively[1]. **In Vitro:** Donepezil (E2020 free base) inhibits the carbachol-stimulated increase in intracellular Ca2+ concentration in human SHSY5Y neuroblastoma cells in a concentration dependent manner, indicating that Donepezil have muscarinic antagonist activity. Intraperitoneal administration of Donepezil in rats produces a dose dependent increase in salivation and tremor, which are overt cholinergic behavioural signs, with an ED50 of 6 μmol/kg. Donepezil is found to be somewhat less potent with a ED50 of 50 μmol/kg following oral administration[2].

A recent study shows that Donepezil can protect human umbilical vein endothelial cells (HUVECs) against H2O2-induced cell injury. This may be useful as a potential therapy for oxidative stress in cardiovascular and cerebrovascular diseases[3].

References:

[1]. Ogura, H., et al., Comparison of inhibitory activities of donepezil and other cholinesterase inhibitors on acetylcholinesterase and butyrylcholinesterase in vitro. Methods Find Exp Clin Pharmacol, 2000. 22(8): p. 609-13.

[2]. Snape, M.F., et al., A comparative study in rats of the in vitro and in vivo pharmacology of the acetylcholinesterase inhibitors tacrine, donepezil and NXX-066. Neuropharmacology, 1999. 38(1): p. 181-93.

[3]. Huang, Z.H., et al., Donepezil protects endothelial cells against hydrogen peroxide-induced cell injury. CNS Neurosci Ther, 2012. 18(2): p. 185-7.

CAIndexNames:

1H-Inden-1-one, 2,3-dihydro-5,6-dimethoxy-2-[[1-(phenylmethyl)-4-piperidinyl]methyl]-

SMILES:

O=C(C(C=C(OC)C(OC)=C1)=C1C2)C2CC(CC3)CCN3CC4=CC=CC=C4

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

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