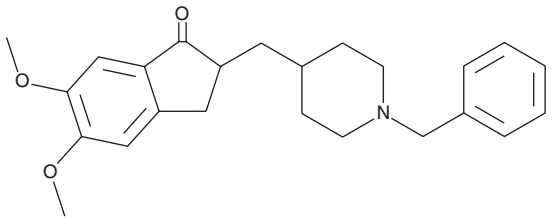
PRODUCT INFORMATION

Donepezil

Item No. 13245

CAS Registry No.:	120014-06-4
Formal Name:	2,3-dihydro-5,6-dimethoxy-2[[1-(phenylmethyl)-4-piperidinyl] methyl]-1H-inden-1-one
MF:	$C_{24}H_{29}NO_3$
FW:	379.5
Purity:	≥95%
UV/Vis.:	λ_{max}: 208, 231, 269, 314 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Donepezil is supplied as a crystalline solid. A stock solution may be made by dissolving the donepezil in the solvent of choice, which should be purged with an inert gas. Donepezil is soluble in organic solvents such as chloroform and acetone. The solubility of donepezil in these solvents is approximately 50 and 25 mg/ml, respectively.

Description

Donepezil is an inhibitor of acetylcholinesterase (AChE; IC_{50} = 6.7 nM).[1] It is selective for AChE over butyrylcholinesterase (BChE; IC_{50} = 988 nM). Donepezil (0.1 and 1 µM) inhibits the production of nitric oxide (NO) and TNF-α induced by oligomeric amyloid-β (1-42) ($A\beta O_{1-42}$) in primary rat microglial cells.[2] It increases ACh levels in the cortex and hippocampus of aged rats when administered at a dose of 1.5 mg/kg.[3] Donepezil (2 mg/kg) reduces Mac-1 and GFAP protein expression, markers of microglia and astrocyte activation, respectively, in the hippocampal dentate gyrus of a mouse model of Alzheimer's disease induced by intrahippocampal injection of $A\beta O_{1-42}$.[2] It increases step-through latency in a passive avoidance test in the same model. Formulations containing donepezil have been used in the treatment of Alzheimer's disease.

References

1. Cacabelos, R. Donepezil in Alzheimer's disease: From conventional trials to pharmacogenetics. *Neuropsychiatr. Dis. Treat.* **3(3)**, 303-333 (2007).
2. Kim, H.G., Moon, M., Choi, J.G., *et al.* Donepezil inhibits the amyloid-beta oligomer-induced microglial activation *in vitro* and *in vivo*. *Neurotoxicology* **40**, 23-32 (2014).
3. Scali, C., Casamenti, F., Bellucci, A., *et al.* Effect of subchronic administration of metrifonate, rivastigmine and donepezil on brain acetylcholine in aged F344 rats. *J. Neural Transm. (Vienna)* **109(7-8)**, 1067-1080 (2002).

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