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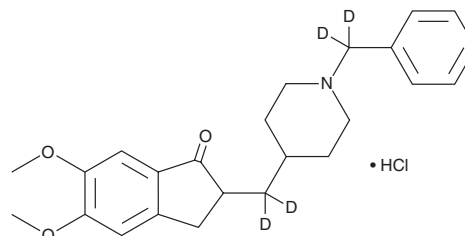
PRODUCT INFORMATION



Donepezil-d₄ (hydrochloride)

Item No. 18251

CAS Registry No.: 1219798-88-5
Formal Name: 2,3-dihydro-5,6-dimethoxy-2[[1-(phenylmethyl-d₂)-4-piperidinyl]methyl-d₂]-1H-inden-1-one, monohydrochloride
MF: C₂₄H₂₅D₄NO₃ • HCl
FW: 420.0
Chemical Purity: ≥95% (Donepezil)
Deuterium
Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
UV/Vis.: λ_{max}: 231, 269, 313 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

Donepezil-d₄ is intended for use as an internal standard for the quantification of donepezil (Item No. 13245) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Donepezil-d₄ (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the donepezil-d₄ (hydrochloride) in the solvent of choice. Donepezil-d₄ (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of donepezil-d₄ (hydrochloride) in these solvents is approximately 1 mg/ml.

Description

Donepezil is an inhibitor of acetylcholinesterase (AChE; IC₅₀ = 6.7 nM).¹ It is selective for AChE over butyrylcholinesterase (BChE; IC₅₀ = 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) (AβO₁₋₄₂) 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 AβO₁₋₄₂.² 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).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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