Rivastigmine (tartrate)
Item No. 14270

CAS Registry No.: 129101-54-8
Formal Name: 3-[(1S)-1-(dimethylamino)ethyl]phenyl ester N-ethyl-N-methyl-carbamic acid, 2R,3R-dihydroxybutanedioate
Synonyms: Exelon, SDZ-ENA 713
MF: C_{14}H_{22}N_{2}O_{2} • C_{4}H_{6}O_{6}
FW: 400.4
Purity: ≥95%
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

Rivastigmine (tartrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the rivastigmine (tartrate) in the solvent of choice. Rivastigmine (tartrate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of rivastigmine (tartrate) in ethanol and DMSO is approximately 16 mg/ml and approximately 25 mg/ml in DMF.

Description

Rivastigmine is a cholinesterase (ChE) inhibitor that inhibits butyryl ChE (BChE) and acetyl ChE (AChE; IC_{50} = 0.037 and 4.15 μM, respectively). It increases levels of secreted amyloid precursor protein (sAPP) and decreases levels of soluble amyloid-β (1-40) and various N-terminal cleavage products in primary embryonic rat neurons undergoing degeneration when used at concentrations of 5 and 10 μM. In a rat model of Alzheimer's disease induced by aluminum chloride (AlCl_3), rivastigmine (1 mg/kg per day) inhibits formation of amyloid plaques in brain sections and increases in AChE, IL-1β, and β-secretase 1 (BACE1) mRNA expression in the cerebral cortex. It inhibits AlCl_3-induced increases in escape latency time in the Morris water maze in a rat model of Alzheimer's disease when administered at a dose of 1 mg/kg. Rivastigmine (2 mg/kg) also reverses decreases in time spent in the open arms of an elevated plus maze, exploration time of a novel object in a novel object recognition test, and sucrose intake in a rat model of chronic mild stress. Formulations containing rivastigmine have been used in the treatment of dementia associated with Alzheimer's disease and Parkinson's disease.

References