Donepezil is an acetylcholinesterase (AChE) inhibitor that is clinically used to treat Alzheimer’s disease. Donepezil displays neuroprotective, cognition enhancing, cardioprotective, and anti-inflammatory activities. In animal models, donepezil improves memory and learning ability. In vitro, donepezil downregulates expression of the NR1 subunit of NMDA receptors, inhibiting glutamate-mediated Ca2+ entry into cells; this mechanism is thought to be dependent on donepezil activity on α7 nicotinic acetylcholine receptors (nAChRs). Additionally, this compound inhibits glycogen synthase kinase 3 (GSK3) and activates PI3K/Akt signaling, helping to prevent amyloid-β (Aβ) toxicity. Donepezil also binds to σ1 receptors. In animal models of congestive heart failure, donepezil decreases left ventricular end diastolic pressure, increases left ventricular contractility, decreases left ventricular expression of brain natriuretic peptide (BNP), and decreases heart weight, resulting in greater survival rates.

References


Caution: This product is intended for laboratory and research use only. It is not for human or drug use.