

Cholinergic Signaling Modulators

Acetylcholine (ACh) is a neurotransmitter in both the peripheral nervous system (PNS) and central nervous system (CNS) in many organisms. ACh is one of many neurotransmitters in the autonomic nervous system and the only neurotransmitter found in the motor division of the somatic nervous system. ACh is also the principal neurotransmitter in autonomic ganglia. This compound activates signaling cascades at the neuromuscular junction and exerts effects on plasticity, arousal, reward, sensory perception, and attention¹⁻².

LKT Laboratories offers several compounds that modulate ACh activity. **Darifenacin (D0169)** inhibits M3 muscarinic acetylcholine receptors³. **Donepezil Hydrochloride (D5753)** is a reversible acetylcholinesterase inhibitor that prolongs ACh activity and is used to treat Parkinson's disease⁴. **Pancuronium Bromide (P0252)** and **Atracurium Besylate (A7668)** are nonselective antagonists at nicotinic acetylcholine receptors at neuromuscular junctions and are used to induce muscle relaxation and anesthesia⁵. **Bupropion Hydrochloride (B8363)** is an antidepressant and smoking cessation aid that acts as a noncompetitive antagonist at $\alpha_3\beta_2$ and $\alpha_4\beta_2$ nicotinic acetylcholine receptors⁶.



Mecamylamine Hydrochloride (M1708) is also an antagonist at nicotinic acetylcholine receptors, although it inhibits a much wider variety of receptor subtypes; it is primarily used in reward and reinforcement research models⁷. **Rivastigmine Hydrogen Tartrate (R3586)** is an inhibitor of acetylcholinesterase and butylcholinesterase that is used to treat dementia and to study Alzheimer's disease in research models⁸.

References:

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