(+)-Tubocurarine chloride hydrate

Product Number  T 2379
Storage Temperature  2-8 °C

Product Description
CAS Number: 57-94-3
Molecular Formula: C_{37}H_{42}Cl_{2}N_{2}O_{6} (anhydrous)
Molecular Weight: 681.7
λ_{max}: 280 nm
Extinction coefficient: E^{1%} = 118 (H_{2}O)^{1}
Specific rotation: [\alpha]^{23}_{d} = +190°
(c = 0.785, in methanol)^{1}
Synonym: d-tubocurarine chloride hydrate

(+)-Tubocurarine chloride is the physiologically active component of curare, which was discovered in the South American plant liana (Chondodendron tomentosum).^{1,2} It is a competitive, non-depolarizing agonist at neuromuscular junctions and is a skeletal muscle relaxant.^{3} (+)-tubocurarine competes with acetylcholine for receptors on the motor-end plate of the neuromuscular junction, leading to blockade and paralysis of voluntary muscles.^{4,5} It does not activate the junction receptors and, thus, binding does not lead to contraction.

The structure of (+)-tubocurarine contains two quaternary nitrogen atoms, which are positively charged. Thus, (+)-tubocurarine cannot cross membranes, and will not cross the blood/brain barrier.

(+)-tubocurarine has been investigated widely in studies on neurotransmission, including its effect on auditory brain-stem evoked potentials^{6} and in norepinephrine release from atrial tissue.^{7} It has also been used in the study of nicotine-mediated blockage of antibacterial activity by macrophages, through competitive binding of (+)-tubocurarine to murine macrophage nicotinic acetylcholine receptors.^{8} A study of the molecular interaction of (+)-tubocurarine with the muscle nicotinic acetylcholine receptor binding site has been reported.^{9}

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions
This product is soluble in water (50 mg/ml) with heating as needed, yielding a clear to slightly hazy, colorless to yellow solution. It has also been reported to be soluble in ethanol and methanol.^{1}

Storage/Stability
Aqueous solutions of (+)-tubocurarine can be sterilized by autoclaving.

References
1. The Merck Index, 12th ed., Entry# 9939.


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