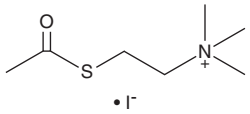
PRODUCT INFORMATION

Acetylthiocholine (iodide)

Item No. 34313

CAS Registry No.: 1866-15-5
Formal Name: 2-(acetylthio)-N,N,N-trimethyl-ethanaminium, monoiodide
Synonyms: ASCh, ATCh
MF: $C_7H_{16}NOS \bullet I$
FW: 289.2
Purity: ≥95%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Acetylthiocholine (iodide) is supplied as a solid. A stock solution may be made by dissolving the acetylthiocholine (iodide) in the solvent of choice, which should be purged with an inert gas. Acetylthiocholine (iodide) is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of acetylthiocholine (iodide) in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of acetylthiocholine (iodide) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of acetylthiocholine (iodide) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Acetylthiocholine is a substrate for acetylcholinesterase (AChE) and an agonist of α4β2 subunit-containing nicotinic acetylcholine receptors (nAChRs).[1,2] It binds to α4β2 subunit-containing nAChRs in SH-EP1 cells (IC_{50} = 7.1 µM for the human receptor) and induces rubidium efflux in an agonist-induced rubidium efflux assay (EC_{50} = 100 µM).[2] Acetylthiocholine has been used as part of a thiocholine sensor for the detection of pesticides in complex sample types, such as soil, groundwater, and spinach.[1]

References

1. Chen, L., Tian, X., Li, Y., *et al.* Broad-spectrum pesticide screening by multiple cholinesterases and thiocholine sensors assembled high-throughput optical array system. *J. Hazard. Mater.* **402**, 123830 (2021).
2. Eaton, J.B., Peng, J.-H., Schroeder, K.M., *et al.* Characterization of human α4β2-nicotinic acetylcholine receptors stably and heterologously expressed in native nicotinic receptor-null SH-EP1 human epithelial cells. *Mol. Pharmacol.* **64(6)**, 1283-1294 (2003).

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