

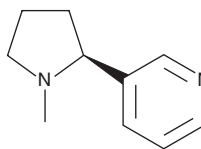
PRODUCT INFORMATION



(-)-Nicotine

Item No. 29138

CAS Registry No.: 54-11-5
Formal Name: 3-[(2S)-1-methyl-2-pyrrolidinyl]-pyridine
Synonyms: L-Nicotine, (-)-(S)-Nicotine
MF: C₁₀H₁₄N₂
FW: 162.2
Purity: ≥95%
UV/Vis.: λ_{max}: 262 nm
Supplied as: An oil
Storage: -20°C
Stability: ≥4 years
Item Origin: Synthetic



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

Laboratory Procedures

(-)-Nicotine is supplied as an oil. A stock solution may be made by dissolving the (-)-nicotine in the solvent of choice, which should be purged with an inert gas. (-)-Nicotine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of (-)-nicotine in ethanol and DMF is approximately 50 mg/ml and approximately 30 mg/ml in DMSO.

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 (-)-nicotine can be prepared by directly dissolving the oil in aqueous buffers. The solubility of (-)-nicotine in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(-)-Nicotine is an alkaloid that has been found in tobacco.¹ It is an agonist at neuronal nicotinic acetylcholine receptors (nAChRs) and binds to α3β4 and α4β2 subunit-containing nAChRs with K_i values of 481 and 11.1 nM, respectively.^{1,2} Chronic exposure to (-)-nicotine results in increased expression of certain nAChRs, particularly α4β2 subunit-containing nAChRs.³ (-)-Nicotine has addictive properties.^{2,3} Formulations containing (-)-nicotine have been used as smoking cessation aids for the relief of nicotine withdrawal symptoms.

References

1. Clayton, P., Lu, A., and Bishop, L. The pyrolysis of (-)-(S)-nicotine: Racemization and decomposition. *Chirality* **22**(4), 442-446 (2010).
2. Zaveri, N., Jiang, F., Olsen, C., *et al.* Novel α3β4 nicotinic acetylcholine receptor-selective ligands. Discovery, structure-activity studies, and pharmacological evaluation. *J. Med. Chem.* **53**(22), 8187-8191 (2010).
3. Albuquerque, E.X., Pereira, E.F.R., Alkondon, M., *et al.* Mammalian nicotinic acetylcholine receptors: From structure to function. *Physiol. Rev.* **89**(1), 73-120 (2009).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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