

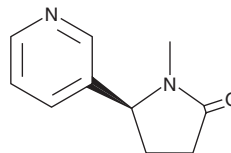
PRODUCT INFORMATION



(-)-Cotinine

Item No. 15314

CAS Registry No.: 486-56-6
Formal Name: 1-methyl-5S-(3-pyridinyl)-2-pyrrolidinone
Synonym: NIH 10498
MF: C₁₀H₁₂N₂O
FW: 176.2
Purity: ≥98%
UV/Vis.: λ_{max}: 262 nm
Supplied as: A crystalline solid
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

(-)-Cotinine is supplied as a crystalline solid. A stock solution may be made by dissolving the (-)-cotinine in the solvent of choice, which should be purged with an inert gas. (-)-Cotinine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of (-)-cotinine 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 (-)-cotinine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (-)-cotinine in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(-)-Cotinine is an alkaloid that has been found in tobacco plants and an active metabolite of the neuronal nicotinic acetylcholine receptor (nAChR) agonists (±)-nicotine (Item No. 16535) and (-)-nicotine (Item Nos. 29138 | 20887).^{1,2} It is formed from nicotine by the cytochrome P450 (CYP) isoforms CYP2A6 or CYP2A13 via a 5'-hydroxy nicotine intermediate.² (-)-Cotinine (1 and 10 μM) reduces the number of dsDNA breaks induced by the tobacco-specific nitrosamine carcinogen 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK; Item No. 16414) in a comet assay using HepaRG hepatocellular carcinoma cells.³ *In vivo*, (-)-cotinine (0.09 μg/kg) increases nicotine self-administration in rats.⁴

References

1. Terry, A.V., Jr., Hernandez, C.M., Hohnadel, E.J., *et al.* Cotinine, a neuroactive metabolite of nicotine: Potential for treating disorders of impaired cognition. *CNS Drug Rev.* **11(3)**, 229-252 (2005).
2. von Weyarn, L.B., Retzlaff, C., and Murphy, S.E. CYP2A6- and CYP2A13-catalyzed metabolism of the nicotine Δ^{5(1')}iminium ion. *J. Pharmacol. Exp. Ther.* **343(2)**, 307-315 (2012).
3. Ordonez, P., Sierra, A.B., Camacho, O.M., *et al.* Nicotine, cotinine, and β-nicotyrine inhibit NNK-induced DNA-strand break in the hepatic cell line HepaRG. *Toxicol. In Vitro* **28(7)**, 1329-1337 (2014).
4. Clemens, K.J., Caillé, S., Stinus, L., *et al.* The addition of five minor tobacco alkaloids increases nicotine-induced hyperactivity, sensitization and intravenous self-administration in rats. *Int. J. Neuropsychopharmacol.* **12(10)**, 1355-1366 (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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 01/16/2024

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM