

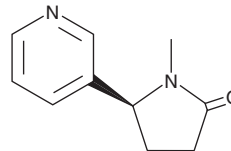
# PRODUCT INFORMATION



## (-)-Cotinine

Item No. 15314

<b>CAS Registry No.:</b>	486-56-6
<b>Formal Name:</b>	1-methyl-5S-(3-pyridinyl)-2-pyrrolidinone
<b>Synonym:</b>	NIH 10498
<b>MF:</b>	C <sub>10</sub> H <sub>12</sub> N <sub>2</sub> O
<b>FW:</b>	176.2
<b>Purity:</b>	≥98%
<b>UV/Vis.:</b>	λ <sub>max</sub> : 262 nm
<b>Supplied as:</b>	A crystalline solid
<b>Storage:</b>	-20°C
<b>Stability:</b>	As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly



### Laboratory Procedures

(-)-Cotinine is supplied as a crystalline solid. A stock solution may be made by dissolving the (-)-cotinine in the solvent of choice. (-)-Cotinine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. 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 a minor alkaloid found in tobacco plants and is a major metabolite of nicotine.<sup>1</sup> It has a long pharmacological half-life (15-19 hours) compared to that of nicotine (2-3 hours) and is often used as a biomarker to detect tobacco use.<sup>2-4</sup> Cotinine binds nicotinic- and muscarinic-type acetylcholine receptors with minimal receptor desensitization and demonstrates antipsychotic drug-like properties in behavioral models, neuroprotective properties in neurodegenerative disease models, and enhances attention in a delayed matching-to-sample task.<sup>2</sup>

### References

1. 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).
2. 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).
3. Jacob, P.I., Yu, L., Shulgin, A.T., *et al.* Minor tobacco alkaloids as biomarkers for tobacco use: Comparison of users of cigarettes, smokeless tobacco, cigars, and pipes. *Am. J. Public Health* **89(5)**, 731-736 (1999).
4. Murphy, S.E., Link, C.A., Jensen, J., *et al.* A comparison of urinary biomarkers of tobacco and carcinogen exposure in smokers. *Cancer Epidemiol. Biomarkers Prev.* **13(10)**, 1617-1623 (2004).

#### 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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