Print Date: Oct 18th 2019

Certificate of Analysis

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Product Name: **(-)-Cotinine** **Catalog No.: 3110** **Batch No.: 4**

CAS Number: 486-56-6 EC Number: 207-634-9

IUPAC Name: (*S*)-1-Methyl-5-(3-pyridinyl)-2-pyrrolidinone

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{10}H_{12}N_2O.0.3H_2O$

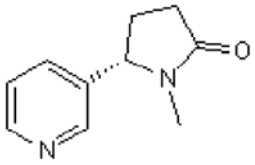
Batch Molecular Weight: 181.626

Physical Appearance: Off White solid

Solubility: DMSO to 100 mM
1eq. HCl to 50 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.9% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Optical Rotation: $[\alpha]_D$ = -27.2 (Concentration = 1, Solvent = Ethanol)

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	66.13	6.99	15.42
Found	65.74	7.03	15.69

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IUPAC Name: (*S*)-1-Methyl-5-(3-pyridinyl)-2-pyrrolidinone

Description:

Major metabolite of nicotine. Shown to activate a subpopulation of α3/α6β2 nAChRs in monkey striatum. Displays cognition-enhancing effects in vivo; reduces amyloid β (Aβ) aggregation and improves memory in an Alzheimer's disease mouse model.

Physical and Chemical Properties:

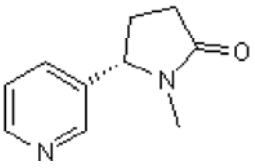
Batch Molecular Formula: $C_{10}H_{12}N_2O.0.3H_2O$

Batch Molecular Weight: 181.626

Physical Appearance: Off White solid

Minimum Purity: >99%

Batch Molecular Structure:



Storage: Store at -20°C

Solubility & Usage Info:

DMSO to 100 mM
1eq. HCl to 50 mM

CAUTION - This product is extremely hygroscopic and we recommend that it is desiccated upon arrival. This compound is a hygroscopic low melting solid. It can appear as a white solid or a pale yellow oil, depending on storage conditions.

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Echeverria *et al* (2011) Cotinine reduces amyloid-β aggregation and improves memory in Alzheimer's disease mice. J.Alzheimers Dis. ***23*** 1. PMID: 20930295.

O'Leary *et al* (2008) Cotinine selectively activates a subpopulation of α3/α6β2 nicotinic receptors in monkey striatum. ***325*** 646. PMID: 18305015.

Terry *et al* (2005) Cotinine, a neuroactive metabolite of nicotine: potential for treating disorders of impaired cognition. CNS Drug Rev. ***11*** 229. PMID: 16389292.

Buccafusco and Terry (2003) The potential role of cotinine in the cognitive and neuroprotective actions of nicotine. Life Sci. ***72*** 2931. PMID: 12706481.