

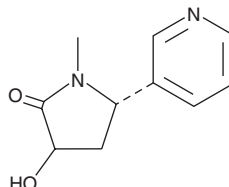
PRODUCT INFORMATION



trans-3'-Hydroxycotinine

Item No. 16100

CAS Registry No.: 34834-67-8
Formal Name: 3R-hydroxy-1-methyl-5S-(3-pyridinyl)-2-pyrrolidinone
Synonym: 3HC
MF: $C_{10}H_{12}N_2O_2$
FW: 192.2
Purity: $\geq 98\%$
UV/Vis.: $\lambda_{\max}$: 262 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥ 2 years



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

Laboratory Procedures

trans-3'-Hydroxycotinine (3HC) is supplied as a crystalline solid. A stock solution may be made by dissolving the 3HC in the solvent of choice, which should be purged with an inert gas. 3HC is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 3HC 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 3HC can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3HC in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

3HC is a product of CYP2A6 metabolism of the primary nicotine metabolite, cotinine (Item No. 15314).^{1,2} Cotinine has a longer metabolic half-life compared to 3HC (16 hours vs. 5 hours).¹ The ratio of 3HC to cotinine, termed the nicotine metabolite ratio, correlates with nicotine clearance from the body and is used as a biomarker of CYP2A6 activity.¹ This measure of nicotine metabolism has been used to study tobacco and secondhand smoke exposure as well as to develop pharmacological intervention strategies for smoking cessation.^{1,3}

References

1. Zhu, A.Z., Zhou, Q., Cox, L.S., et al. Variation in *trans*-3'-hydroxycotinine glucuronidation does not alter the nicotine metabolite ratio or nicotine intake. *PLoS One* **8**(8), e70938 (2013).
2. von Weymarn, L.B., Retzlaff, C., and Murphy, S.E. CYP2A6- and CYP2A13-catalyzed metabolism of the nicotine $\Delta^{5(1')}$ iminium ion. *J. Pharmacol. Exp. Ther.* **343**(2), 307-315 (2012).
3. Murphy, S.E., Wickham, K.M., Lindgren, B.R., et al. Cotinine and *trans* 3'-hydroxycotinine in dried blood spots as biomarkers of tobacco exposure and nicotine metabolism. *J. Expo. Sci. Environ. Epidemiol.* **23**(5), 513-518 (2013).

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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