

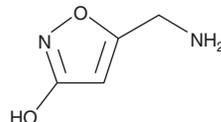
PRODUCT INFORMATION



Muscimol

Item No. 13667

CAS Registry No.: 2763-96-4
Formal Name: 5-(aminomethyl)-3(2H)-isoxazolone
Synonyms: Agarin, NSC 333569, Pantherine
MF: C₄H₆N₂O₂
FW: 114.1
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Muscimol is supplied as a crystalline solid. Aqueous solutions of muscimol can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of muscimol in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

The amino acid γ -aminobutyric acid (GABA) is an inhibitory neurotransmitter that acts through two families of heteromeric ligand-gated ion channels, GABA_A and GABA_C and a G protein-coupled receptor, GABA_B. Muscimol is a full GABA_A agonist and partial GABA_C agonist. It binds GABA_A on both high- and low-affinity sites ($K_d = 10$ and 270 nM, respectively), stimulating chloride efflux with an EC₅₀ value of 200 nM.¹ Benzodiazepines enhance the effects of muscimol *via* GABA_A without altering its binding.^{1,2} Muscimol activates GABA_C receptors with an EC₅₀ value of 1.3 μ M.³ It also acts as an inhibitor of GABA_A uptake and a substrate for the GABA-metabolizing enzyme GABA transaminase.⁴ Muscimol impairs memory formation and retrieval in mice and attenuates airway constriction in guinea pigs *in vivo*.^{5,6}

References

1. Dunn, S.M.J. and Thuynsma, R.P. Reconstitution of purified GABA_A receptors: Ligand binding and chloride transporting properties. *Biochemistry* **33**, 755-763 (1994).
2. Parramón, M., González, M.P., and Oset-Gasque, M.J. Pharmacological modulation of adrenal medullary GABA_A receptor: Consistent with its subunit composition. *Br. J. Pharmacol.* **116**, 1875-1881 (1995).
3. Zhang, D., Pan, Z.-H., Awobuluyi, M., *et al.* Structure and function of GABA_C receptors: A comparison of native *versus* recombinant receptors. *Trends Pharmacol. Sci.* **22**(3), 121-132 (2001).
4. Krogsgaard-Larsen, P., Frølund, B., and Frydenvang, K. GABA uptake inhibitors. Design, molecular pharmacology and therapeutic aspects. *Curr. Pharm. Des.* **6**, 1193-1209 (2000).
5. Jafari-Sabet, M. and Jannat-Dastjerdi, I. Muscimol state-dependent memory: Involvement of dorsal hippocampal μ -opioid receptors. *Behav. Brain Res.* **202**, 5-10 (2009).
6. Gleason, N.R., Gallos, G., Zhang, Y., *et al.* The GABA_A agonist muscimol attenuates induced airway constriction in guinea pigs *in vivo*. *J. Appl. Physiol.* **106**, 1257-1263 (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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