

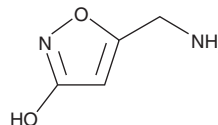
# PRODUCT INFORMATION



## Muscimol

Item No. 13667

**CAS Registry No.:** 2763-96-4  
**Formal Name:** 5-(aminomethyl)-3(2H)-isoxazolone  
**Synonyms:** Agarin, Pantherine  
**MF:** C<sub>4</sub>H<sub>6</sub>N<sub>2</sub>O<sub>2</sub>  
**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. A stock solution may be made by dissolving the muscimol in the solvent of choice, which should be purged with an inert gas. Muscimol is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide.

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 muscimol can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of XX 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  $\gamma$ -aminobutyric acid (GABA) is an inhibitory neurotransmitter that acts through two families of heteromeric ligand-gated ion channels, GABA<sub>A</sub> and GABA<sub>C</sub> and a G protein-coupled receptor, GABA<sub>B</sub>. Muscimol is a full GABA<sub>A</sub> agonist and partial GABA<sub>C</sub> agonist. It binds GABA<sub>A</sub> on both high- and low-affinity sites ( $K_d = 10$  and 270 nM, respectively), stimulating chloride efflux with an EC<sub>50</sub> value of 200 nM.<sup>1</sup> Benzodiazepines enhance the effects of muscimol *via* GABA<sub>A</sub> without altering its binding.<sup>1,2</sup> Muscimol activates GABA<sub>C</sub> receptors with an EC<sub>50</sub> value of 1.3  $\mu$ M.<sup>3</sup> It also acts as an inhibitor of GABA<sub>A</sub> uptake and a substrate for the GABA-metabolizing enzyme GABA transaminase.<sup>4</sup> Muscimol impairs memory formation and retrieval in mice and attenuates airway constriction in guinea pigs *in vivo*.<sup>5,6</sup>

### References

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2. Parramón, M., González, M.P., and Oset-Gasque, M.J. Pharmacological modulation of adrenal medullary GABA<sub>A</sub> 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<sub>C</sub> receptors: A comparison of native *versus* recombinant receptors. *Trends Pharmacol. Sci.* **22(3)**, 121-132 (2001).
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5. Jafari-Sabet, M. and Jannat-Dastjerdi, I. Muscimol state-dependent memory: Involvement of dorsal hippocampal  $\mu$ -opioid receptors. *Behav. Brain Res.* **202**, 5-10 (2009).
6. Gleason, N.R., Gallos, G., Zhang, Y., *et al.* The GABA<sub>A</sub> 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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