

Product Information

Muscimol

Catalog Number **M1523**

Storage Temperature 2–8 °C

CAS RN 2763-96-4

Synonyms: 5-aminomethyl-3-hydroxy-isoxazole,
3-hydroxy-5-aminomethyl-isoxazole, 5-aminomethyl-
3-isoxazolol

Product Description

Molecular Formula: C₄H₆N₂O₂

Molecular Weight: 114.10

Muscimol is an isoxazole derivative occurring naturally in the mushroom *Amanita muscaria*. It is a potent central nervous system (CNS) depressant and γ -aminobutyric acid (GABA) agonist, and thus, has been used to investigate GABA receptors.¹ The structure of muscimol has served as a template for the design of compounds to act as GABA uptake inhibitors and GABA_A receptor agonists.² A review of GABA receptors that discusses the use of muscimol to probe echinoderm neuromuscular junction has been published.³

In cultured rat oligodendrocytes, muscimol has been shown to lead to a reduction in intracellular Cl[−] content, cell shrinkage, and stimulated Na-K-2Cl cotransporter isoform 1 (NKCC1) activity.⁴ Muscimol (50 μ M) has been utilized to probe the role of the p42/44 mitogen-activated protein kinase (MAPK) cascade in the development of cultured rat hypothalamic neurons.⁵ The use of muscimol (5 μ M) to probe burst firing in rat brain slices has been described.⁶

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is soluble in 0.05 M HCl (20 mg/ml), yielding a clear, colorless to very faint yellow solution.

Storage/Stability

The product, as supplied, is stable for at least 5 years.

Solutions of this product should be stored in frozen aliquots at near-neutral pH and protected from light.

References

1. The Merck Index, 12th Ed., Entry# 6391.
2. Krogsaard-Larsen, P., et al., GABA uptake inhibitors. Design, molecular pharmacology and therapeutic aspects. *Curr. Pharm. Des.*, **6**(12), 1193-1209 (2000).
3. Devlin, C. L., The pharmacology of γ -aminobutyric acid and acetylcholine receptors at the echinoderm neuromuscular junction. *J. Exp. Biol.*, **204**(Pt 5), 887-896 (2001).
4. Wang, H., et al., GABA-mediated trophic effect on oligodendrocytes requires Na-K-2Cl cotransport activity. *J. Neurophysiol.*, **90**(2), 1257-1265 (2003).
5. Obrietan, K., et al., Excitatory actions of GABA increase BDNF expression via a MAPK-CREB-dependent mechanism - a positive feedback circuit in developing neurons. *J. Neurophysiol.*, **88**(2), 1005-1015 (2002).
6. Baufreton, J., et al., Activation of GABA_A receptors in subthalamic neurons in vitro: properties of native receptors and inhibition mechanisms. *J. Neurophysiol.*, **86**(1), 75-85 (2001).

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