

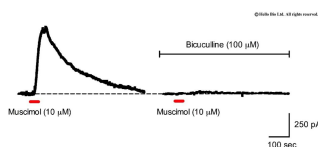
DATASHEET

Muscimol

Product overview

Name	Muscimol
Cat No	HB0887
Biological action	Agonist
Purity	>99%
Description	Potent, selective, competitive GABA _A receptor agonist

Images



Biological Data

Biological description

Potent, selective and competitive GABA_A receptor agonist and a potent partial GABA_A- ρ (GABAC) receptor agonist.

Muscimol is a GABA analog with comparable potency to GABA and is thought to act at the orthosteric site at GABA_A receptors in varying active conformations.

Also acts as a weak inhibitor of GABA uptake but is not a substrate for GABA transaminase.

Application of muscimol evokes GABA_AR currents and its actions are antagonized by the GABA_AR antagonist **bicuculline** (bicuculline **methochloride**, **methiodide** and **methobromide** also available).

Muscimol enhances inhibitory neurotransmission and suppresses spontaneous activity. It is commonly used in reversible brain inactivation studies.

Active in vivo and blood brain barrier permeable.

Application notes

Shows psychoactive, memory impairing effects and anticonvulsant actions at high doses.

The GABA_A receptor agonist muscimol is used at concentrations of 1-50 μ M. Muscimol from Hello Bio used at 10 μ M led to a large hyperpolarising whole-cell current in hippocampal CA1 neurons (see Fig 1 above). Action of muscimol was fully blocked by the GABA_A receptor antagonist **bicuculline** (100 μ M).

#Protocol 1: Assay used for muscimol

- Whole cell voltage clamp recordings of CA1 pyramidal neurons from the rat hippocampal brain slice.
- Neurons were held at 0 mV and GABA_A receptor currents were evoked via applying muscimol

directly to the recording chamber during continuous perfusion.

- To test muscimol's selectivity to GABA_A receptors the experiment was repeated within the same neuron in the presence of the GABA_A receptor antagonist **bicuculline** (100 μM).
- Under these conditions muscimol failed to induce a hyperpolarising current.

Solubility & Handling

Storage instructions Solubility overview Important

Room temperature

Soluble in water (100mM)

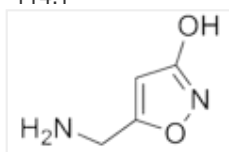
This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Chemical name Molecular Weight Chemical structure

5-Aminomethyl-3-hydroxyisoxazole

114.1



Molecular Formula CAS Number PubChem identifier SMILES Source InChi InChiKey MDL number Appearance

C₄H₆N₂O₂

2763-96-4

4266

C1=C(ONC1=O)CN

Synthetic

InChi=1S/C4H6N2O2/c5-2-3-1-4(7)6-8-3/h1H,2,5H2,(H,6,7)

ZJQHPWUVQPJPQT-UHFFFAOYSA-N

MFCD00057894

White solid

References

Anticonvulsant and behavioral effects of muscimol in immature rats.

Mareš P *et al* (2014) Brain Res 1582

PubMedID [25084038](#)

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Johnston GA (2014) Neurochem Res 39(10)

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Hippocampal infusions of pyruvate reverse the memory-impairing effects of septal muscimol infusions.

Krebs DL *et al* (2005) Eur J Pharmacol 520(1-3)

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