Product overview

Name
Muscimol

Cat No
HB0887

Short description
Potent, selective, competitive GABA\(\alpha\) receptor agonist

Biological description
Potent, selective and competitive GABA\(\alpha\) receptor agonist and a potent partial GABA\(\alpha\)-\(\rho\) (GABAC) receptor agonist.

Muscimol is a GABA analog with comparable potency to GABA and is thought to act at the orthosteric site at GABA\(\alpha\) 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\(\alpha\)R currents and its actions are antagonized by the GABA\(\alpha\)R 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.

Biological action
Agonist

Purity
>99%

Images
Properties

- **Chemical name**: 5-Aminomethyl-3-hydroxyisoxazole
- **Molecular Weight**: 114.1
- **Chemical structure**

![Chemical structure](image)

- **Molecular Formula**: C₄H₆N₂O₂
- **CAS Number**: 2763-96-4
- **PubChem identifier**: 4266
- **SMILES**: C1=C(ONC1=O)CN
- **Source**: Synthetic
- **InChi**: InChI=1S/C4H6N2O2/c5-2-3-1-4(7)6-8-3/h1H,2,5H2,(H,6,7)
- **InChiKey**: ZJQHPWUVQPJPQT-UHFFFAOYSA-N
- **MDL number**: MFCD00057894
- **Appearance**: White solid

Applications

- **Application notes**: The GABA<sub>A</sub> receptor agonist muscimol is used at concentrations of 1-50 µM. Muscimol from Hello Bio used at 10 µM 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<sub>A</sub> receptor antagonist bicuculline (100 µM).

#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<sub>A</sub> receptor currents were evoked via applying muscimol directly to the recording chamber during continuous perfusion.
- To test muscimol's selectivity to GABA<sub>A</sub> receptors the experiment was repeated within the same neuron in the presence of the GABA<sub>A</sub> receptor antagonist bicuculline (100 µM).
- Under these conditions muscimol failed to induce a hyperpolarising current.
Storing and Using Your Product

Storage instructions
Room temperature

Solubility overview
Soluble in water (100mM)

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

References for Muscimol

**Anticonvulsant and behavioral effects of muscimol in immature rats.**

**PubMedID:** 25084038

**Muscimol as an Ionotropic GABA Receptor Agonist.**

**PubMedID:** 24473816

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

**PubMedID:** 16150437