Product overview

Name: Picrotoxin
Cat No: HB0506
Short description: Non-competitive GABA<sub>A</sub> receptor antagonist
Biological description: Non-competitive GABA<sub>A</sub> receptor antagonist. Also a glycine receptor inhibitor (IC<sub>50</sub> = 2.7 µM). Acts as a convulsant and CNS stimulant. Active in vivo.
Alternative names: PTX
Biological action: Antagonist
Purity: >98%
Customer comments:

Getting on well with DHPG & picrotoxin – they do what they’re supposed to! Professor Bruno Frenguelli, University of Warwick, UK
Reasonable price and good working! Verified customer, Seoul National University

Images

Fig 1: Picrotoxin inhibition of evoked and spontaneous GABA<sub>γ</sub>-R mediated IPSCs in mouse cortical neurons.

The GABA<sub>γ</sub> receptor antagonist Picrotoxin is commonly used to reduce the levels inhibition by blocking the actions of the neurotransmitter GABA. Picrotoxin from Hello Bio reduces both spontaneous inhibitory post synaptic currents (IPSC) and evoked IPSCs. It was effective at concentrations of 10 µM, with complete receptor blockade at 100 µM. For assay protocol see Protocol 1 in Application Notes below.
Properties

Molecular Weight
602.59

Chemical structure

Molecular Formula
C₃₀H₃₄O₁₃

CAS Number
124-87-8

PubChem identifier
518601

SMILES
CC(=C)C1C2C3C4(C(C1C(=O)O2)(CC5C4(O5)O3)O)C.CC12C3C4C(C(C1(CC5C2(O5)C(=O)O3)O)C(=O)O4)C(C)(C)O

InChI
InChI=1S/C15H18O7.C15H16O6/c1-12(2,18)6-7-10(16)20-8(6)9-13(3)14(7,19)4-5-15(13,22-5)11(17)21-9;1-5(2)7-8-11(16)23-10/h5-9,18-19H,4H2,1-3H3;6-10,18H,1,4H2,2-3H3

InChIKey
VJKUPQSHOVKBCO-UHFFFAOYSA-N

MDL number
MFCD00074824

Applications

Application notes

The GABA₆ receptor antagonist Picrotoxin is commonly used to reduce the levels of inhibition by blocking the actions of the neurotransmitter GABA. Picrotoxin from Hello Bio reduces both spontaneous inhibitory post synaptic currents (IPSC) and evoked IPSCs. It was effective at concentrations of 10μM, with complete receptor blockade at 100μM. For assay protocol, see #Protocol 1 in Application Notes below

#Protocol 1: Evoked and spontaneous inhibitory post synaptic currents (IPSCs)

- Whole cell voltage clamp recordings were obtained from layer V neurons of the mouse prelimbic cortex brain slice.
- A stimulating electrode was placed in layers II/III and IPSCs were evoked by a single square (150 μs) pulse every 10 sec at a stimulus intensity that gave a reliable IPSC.
- IPSCs were evoked at a range of neuron holding voltages to measure the reversal potential of the current to ensure it was GABAergic.
- Neurons were held at 0mV and IPSCs continuously stimulated and recorded in response to 5 min applications of varying concentrations of Gabazine until complete receptor inhibition.
- Spontaneous IPSCs were recorded before and after addition of Gabazine by holding the neuron at 0mV and recording for 10 sec.
- All recordings for IPSCs were made in the presence of AMPAR antagonists.

Storing and Using Your Product

Storage instructions
Room temperature

Solubility overview
Soluble in DMSO (100mM) and in ethanol (50mM, gentle warming)

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 Picrotoxin
Picrotoxin-like channel blockers of GABAA receptors.
PubMedID: 16606858

Mechanisms for picrotoxin block of alpha2 homomeric glycine receptors.
PubMedID: 16344549

Picrotoxin blockade of invertebrate glutamate-gated chloride channels: subunit dependence and evidence for binding within the pore.
PubMedID: 9886084