

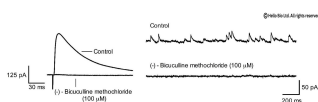
## DATASHEET

### (-)-Bicuculline methochloride

### Product overview

<b>Name</b>	(-)-Bicuculline methochloride
<b>Cat No</b>	HB0895
<b>Alternative names</b>	BIC
<b>Biological action</b>	Antagonist
<b>Purity</b>	>98%
<b>Description</b>	Prototypic, competitive GABA <sub>A</sub> receptor antagonist

### Images



### Biological Data

#### Biological description

Methochloride salt form of (+)-bicuculline.

Prototypic, competitive GABA<sub>A</sub> receptor antagonist which displaces GABA from the agonist binding site to prevent receptor activation.

Also acts as a negative allosteric inhibitor of channel opening to inhibit GABA<sub>A</sub> receptor activation by anaesthetic agents.

Additionally shows activity at SK calcium-activated potassium channels, nicotinic acetylcholine receptors and acetylcholinesterase.

Reversibly and competitively blocks GABA<sub>A</sub> receptor mediated currents. Widely used to isolate glutamate receptor mediated EPSCs (excitatory postsynaptic potentials).

Shows convulsant action and induces epilepsy.

#### Application notes

Freebase, methiodide and methobromide salts also available.

The GABA<sub>A</sub> receptor antagonist bicuculline is commonly used to reduce levels of inhibition by blocking the actions of the neurotransmitter GABA. It is commonly used at concentrations of 100 µM and above. Bicuculline methochloride from Hello Bio reduces both spontaneous inhibitory post synaptic currents (IPSC) and evoked IPSCs (see Fig 1 above). It was effective at 1 µM with complete receptor blockade at 100 µM.

## #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  $\mu$ s) 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 Bicuculline methochloride until complete receptor inhibition.
- Spontaneous IPSCs were recorded before and after addition of Bicuculline methochloride by holding the neuron at 0mV and recording for 10 sec.
- All recordings for IPSCs were made in the presence of AMPAR antagonists.

## Solubility & Handling

Storage instructions  
Solubility overview  
Important

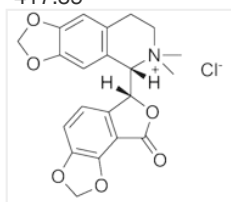
Room temperature  
Soluble in water (100mM)  
This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

## Chemical Data

Chemical name

[R-(R\*,S\*)]-5-(6,8-Dihydro-8-oxofuro[3,4-e]-1,3-benzodioxol-6-yl)-5,6,7,8-tetrahydro-6,6-dimethyl-1,3-dioxolo[4,5-g]isoquinolinium chloride  
417.85

Molecular Weight  
Chemical structure



Molecular Formula  
CAS Number  
PubChem identifier  
SMILES  
Source  
InChi

C<sub>21</sub>H<sub>20</sub>ClNO<sub>6</sub>  
38641-83-7  
44134574  
C[N+]1(CCC2=CC3=C(C=C2C1C4C5=C(C6=C(C=C5)OCO6)C(=O)O4)OCO3)C.[Cl-]  
Synthetic  
InChI=1S/C21H20NO6.ClH/c1-22(2)6-5-11-7-15-16(26-9-25-15)8-13(11)18(22)19-12-3-4-14-20(27-10-24-14)17(12)21(23)28-19;/h3-4,7-8,18-19H,5-6,9-10H2,1-2H3;1H/q+1;/p-1  
RLJKFAMYSYWMND-UHFFFAOYSA-M  
MFCD00055233  
Green solid

InChiKey  
MDL number  
Appearance

## References

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### Differential effects of iontophoretic in vivo application of the GABA(A)-antagonists bicuculline and gabazine in sensory cortex.

Kurt S *et al* (2006) Hear Res 212(1-2)  
PubMedID [16442250](#)

### [Bicuculline inhibits airway remodeling in a murine model of chronic asthma].

Zhu T *et al* (2010) Nan Fang Yi Ke Da Xue Xue Bao 30(4)  
PubMedID [20423862](#)

