Datasheet

**Product overview**

<table>
<thead>
<tr>
<th>Name</th>
<th>(-)-Bicuculline methochloride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat No</td>
<td>HB0895</td>
</tr>
<tr>
<td>Short description</td>
<td>Prototypic, competitive GABA&lt;sub&gt;A&lt;/sub&gt; receptor antagonist</td>
</tr>
<tr>
<td>Biological description</td>
<td>Methochloride salt form of (+)-bicuculline.</td>
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</table>

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.

<table>
<thead>
<tr>
<th>Alternative names</th>
<th>Freebase, methiodide and methobromide salts also available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological action</td>
<td>Antagonist</td>
</tr>
<tr>
<td>Purity</td>
<td>&gt;98%</td>
</tr>
</tbody>
</table>

**Images**
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

Molecular Weight: 417.85

Chemical structure:

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Molecular Formula: C21H20ClNO6

CAS Number: 53552-05-9

PubChem identifier: 44134574

SMILES: C[N+]1(CCC2=CC3=C(C=C(C5=Cl)OOC6)C(=O)O4)OCO3)C.Cl

Source: Synthetic

InChI: 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)

InChiKey: RLJKFAMYSYWMND-UHFFFAOYSA-M

MDL number: MFCD00055233

Appearance: Green solid
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 prefrontal 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 0 mV 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 0 mV 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 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 (-)-Bicuculline methochloride

**Advantages of an antagonist: bicuculline and other GABA antagonists.**


PubMedID: 23425285

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


PubMedID: 16442250

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


PubMedID: 20423862