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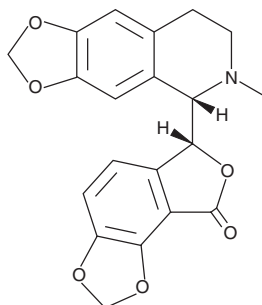
PRODUCT INFORMATION



Bicuculline

Item No. 11727

CAS Registry No.: 485-49-4
Formal Name: 6-[(5S)-5,6,7,8-tetrahydro-6-methyl-1,3-dioxolo[4,5-g]isoquinolin-5-yl]-(6R)-furo[3,4-e]-1,3-benzodioxol-8(6H)-one
MF: C₂₀H₁₇NO₆
FW: 367.4
Purity: ≥98%
UV/Vis.: λ_{max}: 221, 296, 323 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Bicuculline is supplied as a crystalline solid. A stock solution may be made by dissolving the bicuculline in the solvent of choice. Bicuculline is soluble in organic solvents such as DMSO and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of bicuculline in DMSO is approximately 10 mg/ml and approximately 20 mg/ml in DMF.

Bicuculline is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Ionotropic GABA_A receptors are ligand-gated ion channels that facilitate the passing of chloride ions across the cell membrane and promote an inhibitory influence on target neurons. These receptors are the major targets for benzodiazepines and related anxiolytic drugs.¹ Bicuculline is a competitive GABA_A receptor antagonist that can act as an allosteric inhibitor at GABA_A receptors.^{2,3} At 100 μM, it blocks spontaneously opening chloride channels in the outside-out patches from the cultured cortical neurons.³ Bicuculline also reversibly blocks GABA_A receptors on horizontal cells in the mouse retina with an IC₅₀ value of 1.7 μM.⁴ By blocking the inhibitory action of GABA, bicuculline mimics the action of epilepsy and is widely used in experimental studies as a convulsant, inducing seizure in hippocampal or cortical neurons in prepared brain slices.⁵

References

1. Karobath, M. and Sperk, G. *Proc. Natl. Acad. Sci. USA* **76**(2), 1004-1006 (1979).
2. Ueno, S., Bracamontes, J., Zorumski, C., et al. *J. Neurosci.* **17**(2), 625-634 (1997).
3. Birnir, B., Eghbali, M., Everitt, A.B., et al. *Br. J. Pharmacol.* **131**(4), 695-704 (2000).
4. Feigenspan, A. and Weiler, R. *J. Neurophysiol.* **92**(5), 2789-2801 (2004).
5. Baram, T.Z. and Snead, O.C.I. *Brain Res. Dev. Brain Res.* **57**(2), 291-295 (1990).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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