



Product Information

Clozapine

Product Number **C 6305**
Store at Room Temperature

Product Description

Molecular Formula: $C_{18}H_{19}ClN_4$
Molecular Weight: 326.8
CAS Number: 5786-21-0
Melting Point: 183-184 °C¹
 λ_{max} : 215 nm, 230 nm, 261 nm, 297 nm (ethanol)¹
Extinction coefficients (ethanol): $E^{1\%1cm} = 27.4$ (215 nm),
25.8 (230 nm), 16.8 (261 nm), 10.5 (297 nm)¹
Synonym: 8-chloro-11-(4-methyl-1-piperazinyl)-
5H-dibenzo[b,e][1,4]diazepine¹

Clozapine is a dibenzodiazepine compound that is used in cell signaling research. It has dopamine receptor blocking activity, α -adrenergic blocking, antimuscarinic, antihistamine, and antiserotonergic properties.² The role of clozapine in reversing the inhibitory effect of dopamine on sodium and water transport in the rat cortical collecting duct has been reviewed.³

The effects of clozapine on cell culture and transgenic mouse models of amyotrophic lateral sclerosis have been investigated.⁴ Clozapine has been used to probe the role of the calcium/calmodulin-dependent kinase II in NMDA-induced inward currents and electrically evoked excitatory postsynaptic currents in mouse brain sections, cultured mouse cells, and transgenic mice.⁵ Clozapine has been shown to inhibit phosphorylation of the DARPP-32 phosphoprotein (dopamine and cAMP-regulated phosphoprotein of molecular weight 32 kDa), which has a role in dopaminergic and serotonergic neurotransmission.⁶

An HPLC-ESI/MS method for the analysis of clozapine from plasma has been published.⁷ A method for clozapine analysis from plasma that combines atmospheric pressure photoionization (APPI) with HPLC and LC/MS has been reported.⁷

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in methanol (10 mg/ml), yielding a clear, yellow to yellow-green solution. It is also soluble in 0.1 N HCl (30 mg/ml), ethanol (11 mg/ml), and DMSO (4.8 mg/ml).

References

1. The Merck Index, 12th ed., Entry# 2484.
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3. Schafer, J. A., et al., The collecting duct, dopamine and vasopressin-dependent hypertension. *Acta Physiol. Scand.*, **168(1)**, 239-244 (2000).
4. Turner, B. J., et al., Opposing effects of low and high-dose clozapine on survival of transgenic amyotrophic lateral sclerosis mice. *J. Neurosci. Res.*, **74(4)**, 605-613 (2003).
5. Ninan, I., et al., Calcium/calmodulin-dependent kinase II is involved in the facilitating effect of clozapine on NMDA- and electrically evoked responses in the medial prefrontal cortical pyramidal cells. *Synapse*, **47(4)**, 285-294 (2003).
6. Svenningsson, P., et al., DARPP-32 mediates serotonergic neurotransmission in the forebrain. *Proc. Natl. Acad. Sci. USA*, **99(5)**, 3188-3193 (2002).
7. Kollroser, M., and Schober, C., Direct-injection high performance liquid chromatography ion trap mass spectrometry for the quantitative determination of olanzapine, clozapine and N-desmethylclozapine in human plasma. *Rapid Commun. Mass Spectrom.*, **16(13)**, 1266-1272 (2002).
8. Hsieh, Y., et al., High-performance liquid chromatography-atmospheric pressure photoionization/tandem mass spectrometric analysis for small molecules in plasma. *Anal. Chem.*, **75(13)**, 3122-3127 (2003).

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