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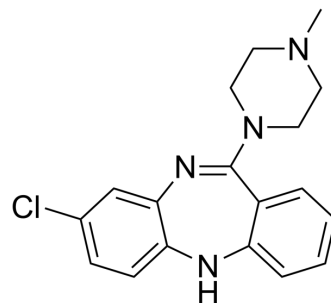
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Clozapine

Cat. No.:	HY-14539		
CAS No.:	5786-21-0		
Molecular Formula:	C ₁₈ H ₁₉ ClN ₄		
Molecular Weight:	326.82		
Target:	Dopamine Receptor; mAChR; Adrenergic Receptor; 5-HT Receptor		
Pathway:	GPCR/G Protein; Neuronal Signaling		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	1 year
		-20°C	6 months



SOLVENT & SOLUBILITY

In Vitro	DMSO : 50 mg/mL (152.99 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
			10 mg	
Preparing Stock Solutions	1 mM	3.0598 mL	15.2989 mL	30.5979 mL
	5 mM	0.6120 mL	3.0598 mL	6.1196 mL
	10 mM	0.3060 mL	1.5299 mL	3.0598 mL
Please refer to the solubility information to select the appropriate solvent.				
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (7.65 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (7.65 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (7.65 mM); Clear solution 			

BIOLOGICAL ACTIVITY

Description	Clozapine (HF 1854) is an antipsychotic used for the research of schizophrenia. Clozapine has high affinity for a number of neuroreceptors. Clozapine is a potent antagonist of dopamine D ₂ with a K _i of 75 nM. Clozapine inhibits the muscarinic M ₁ receptor and serotonin 5HT _{2A} receptor with K _i s of 9.5 nM and 4 nM, respectively ^{[1][2][3]} . Clozapine is also a potent and selective agonist at the muscarinic M ₄ receptor (EC ₅₀ =11 nM) ^[4] .			
IC₅₀ & Target	5-HT _{2A} Receptor 4 nM (Ki, Inhibitor)	5-HT ₆ Receptor (Inhibitor)	5-HT ₇ Receptor (Activator)	mAChR1 9.5 nM (Ki, Antagonist)

	mAChR4 11 nM (EC50, Agonist)	α 2-adrenergic receptor 51 nM (Ki, Inhibitor)	D ₂ Receptor 75 nM (Ki, Antagonist)								
In Vitro	<p>Clozapine (HF 1854) is a D₂ receptor antagonist with a K_i of 75 nM, blocks the serotonin 5HT_{2A} receptor with a K_i of 4 nM, inhibits the muscarinic M₁ receptor with a K_i of 9.5 nM, blocks α2-adrenoceptor with a K_i value of 51 nM^[1]. Clozapine (0-1 μM; 24 h) downregulates 5-HT₆ and upregulates 5-HT₇ receptors in HeLa cells^[2]. Clozapine is a full agonist at the muscarinic M₄ receptor (EC₅₀=11 nM) expressed in CHO cells^[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>										
In Vivo	<p>Clozapine (HF 1854) (25 mg/kg/day; i.p.; 21 days) shows antipsychotic effects in lysergic acid diethylamide-induced psychosis mouse model^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Male 129 S6/Sv mice, lysergic acid diethylamide (LSD)-induced psychosis model^[3]</td> </tr> <tr> <td>Dosage:</td> <td>25 mg/kg/day</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection, 21 days</td> </tr> <tr> <td>Result:</td> <td>Decreased head-twitch response, reduced 5-HT_{2A} mRNA, rescued induction of c-fos, but not egr-1 and egr-2.</td> </tr> </table>			Animal Model:	Male 129 S6/Sv mice, lysergic acid diethylamide (LSD)-induced psychosis model ^[3]	Dosage:	25 mg/kg/day	Administration:	Intraperitoneal injection, 21 days	Result:	Decreased head-twitch response, reduced 5-HT _{2A} mRNA, rescued induction of c-fos, but not egr-1 and egr-2.
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CUSTOMER VALIDATION

- Mol Psychiatry. 2021 Jun;26(6):2514-2532.
- Eur J Pharm Sci. 2023 May 22;106475.
- Eur J Pharm Sci. 2021, 105889.

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REFERENCES

- [1]. Seeman P, et al. Clozapine, a fast-off-D₂ antipsychotic. ACS Chem Neurosci. 2014 Jan 15;5(1):24-9.
- [2]. Zhukovskaya NL, et al. Clozapine downregulates 5-hydroxytryptamine₆ (5-HT₆) and upregulates 5-HT₇ receptors in HeLa cells. Neurosci Lett. 2000 Jul 21;288(3):236-40.
- [3]. Moreno JL, et al. Persistent effects of chronic clozapine on the cellular and behavioral responses to LSD in mice. Psychopharmacology (Berl). 2013 Jan;225(1):217-26.
- [4]. Zorn SH, et al. Clozapine is a potent and selective muscarinic M₄ receptor agonist. Eur J Pharmacol. 1994 Nov 15;269(3):R1-2.

Caution: Product has not been fully validated for medical applications. For research use only.

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