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DATASHEET

Clozapine

Product overview

Name	Clozapine
Cat No	HB1607
Alternative names	CLZ-ChemoNM
Biological action	Agonist
Purity	>99%
Description	Prototypic, atypical antipsychotic, binds to both serotonin and dopamine receptors

Images

Biological Data

Biological description

Clozapine is a prototypic, atypical antipsychotic which binds to both serotonin and dopamine receptors (K_i values are 35, 83 and 22, 250 and 141 nM at D_2, D_3 and D_4, D_5, D_1 and 12.6 and 13.2 nM at 5-HT_{2A} and 5-HT_{2C} receptors respectively) and also shows activity at other receptors.

Clozapine shows high BBB permeability and is active *in vivo*. It shows antisychotic, antidepression and anxiolytic activites.

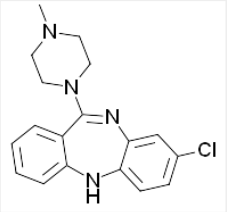
Recently, clozapine (which CNO rapidly converts to) has been indicated to show high DREADD (hM3Dq and hM4Di) affinity and potency. Subthreshold clozapine injections are indicated to induce preferential DREADD-mediated behaviors.

Water soluble version of clozapine also available

Solubility & Handling

Storage instructions	Room temperature
Solubility overview	Soluble in DMSO (100 mM) and in ethanol (50 mM)
Important	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	8-Chloro-11-(4-methyl-1-piperazinyl)-5*H*-dibenzo[*b*,*e*][1,4]diazepine
Molecular Weight	326.83
Chemical structure	
Molecular Formula	$C_{18}H_{19}ClN_4$
CAS Number	5786-21-0
PubChem identifier	2818
SMILES	CN1CCN(CC1)C2=C3C=CC=CC3=NC4=C(N2)C=C(C=C4)Cl
InChi	InChI=1S/C18H19ClN4/c1-22-8-10-23(11-9-22)18-14-4-2-3-5-15(14)20-16-7-6-13(19)12-17(16)21-18/h2-7,12,21H,8-11H2,1H3
InChiKey	ZUXABONWMNSFBN-UHFFFAOYSA-N
MDL number	MFCD00153785
Appearance	Yellow solid

References

Antipsychotic drugs: importance of dopamine receptors for mechanisms of therapeutic actions and side effects.

Strange PG (2001) Pharmacol Rev 53(1)
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Cloning of the gene for a human dopamine D5 receptor with higher affinity for dopamine than D1.

Sunahara RK *et al* (1991) Nature 350(6319)
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Differential regulation of rat 5-HT2A and 5-HT2C receptors after chronic treatment with clozapine, chlorpromazine and three putative atypical antipsychotic drugs.

Kuoppamã?ki M *et al* (1995) Neuropsychopharmacology 13(2)
PubMedID 8597525

Chemogenetics revealed: DREADD occupancy and activation via converted clozapine.

Gomez et al (2017) Science 357(6350)
PubMedID 28774929

DREADDs: The Power of the Lock, the Weakness of the Key. Favoring the Pursuit of Specific Conditions Rather than Specific Ligands.

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