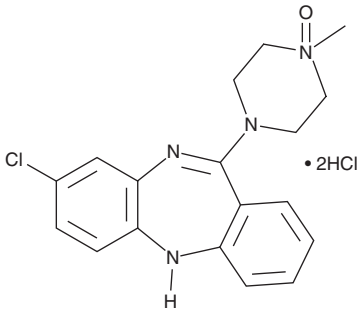
PRODUCT INFORMATION

Clozapine N-oxide (hydrochloride)

Item No. 25780

CAS Registry No.:	2250025-93-3
Formal Name:	8-chloro-11-(4-methyl-4-oxido-1-piperazinyl)-5H-dibenzo[b,e][1,4]diazepine, dihydrochloride
Synonym:	CNO
MF:	$C_{18}H_{19}ClN_4O$ • 2HCl
FW:	415.7
Purity:	≥98%
UV/Vis.:	λ_{max}: 213, 226 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Clozapine N-oxide (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the clozapine N-oxide (hydrochloride) in the solvent of choice. Clozapine N-oxide (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of clozapine N-oxide (hydrochloride) in these solvents is approximately 25 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of clozapine N-oxide (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of clozapine N-oxide (hydrochloride) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Clozapine N-oxide is a major metabolite of clozapine (Item No. 12059) and an activator of designer receptors exclusively activated by designer drugs (DREADDs) derived from human muscarinic acetylcholine receptors (EC_{50}s = 16.7, 323, 17.4, 18.3, and 18.7 nM for PASMCs expressing $hM_{1-5}D$ receptors, respectively).[1,2] It prevents action potential firing in cultured hippocampal neurons transiently expressing hM_4D receptors.[2] Clozapine N-oxide increases glutamate in the nucleus accumbens core and inhibits cue-induced reinstatement of cocaine-seeking behavior in rats transfected with hM3Dq DREADD receptors.[3]

References

1. Eiermann, B., Engel, G., Johansson, I., *et al.* The involvement of CYP1A2 and CYP3A4 in the metabolism of clozapine. *Br. J. Clin. Pharmacol.* **44(5)**, 439-446 (1997).
2. Armbruster, B.N., Li, X., Pausch, M.H., *et al.* Evolving the lock to fit the key to create a family of G protein-coupled receptors potently activated by an inert ligand. *PNAS* **104(12)**, 5163-5168 (2007).
3. Scofield, M.D., Boger, H.A., Smith, R.J., *et al.* Gq-DREADD selectively initiates glial glutamate release and inhibits cue-induced cocaine seeking. *Biol. Psychiatry* **78(7)**, 441-451 (2015).

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