

Certificate of Analysis

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Product Name: Clozapine *N*-oxide (CNO)

Catalog No.: 4936

Batch No.: 18

CAS Number: 34233-69-7

IUPAC Name: 8-Chloro-11-(4-methyl-4-oxido-1-piperazinyl)-5*H*-dibenzo[*b,e*][1,4]diazepine

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₈H₁₉ClN₄O.³/₄H₂O

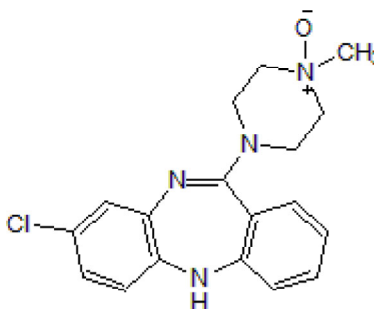
Batch Molecular Weight: 356.33

Physical Appearance: Yellow solid

Solubility: DMSO to 20 mM

Storage: Store at RT

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.8% purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

Carbon Hydrogen Nitrogen

	Carbon	Hydrogen	Nitrogen
Theoretical	60.67	5.8	15.72
Found	60.3	5.77	15.55

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Clozapine N-oxide is a synthetic ligand for human muscarinic engineered receptors, designer receptors activated by designer drugs (DREADD). Binds and activates hM₃D_q and hM₄D_i DREADDs in vitro and in vivo. Metabolite of Clozapine (Cat. No. 0444). Shown to be a P-glycoprotein (P-gp) efflux pump substrate. Example Applications of Clozapine N-oxide (CNO): Silences hippocampal neurons expressing hM₄D_i DREADDs in vitro Inhibits locomotor activity of mice expressing hM₃D_q in GABAergic VTA neurons Inhibits short term memory retrieval in mice expressing hM₄D_i in hippocampal neurons Induces heat and mechanical hypersensitivity in mice expressi... Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

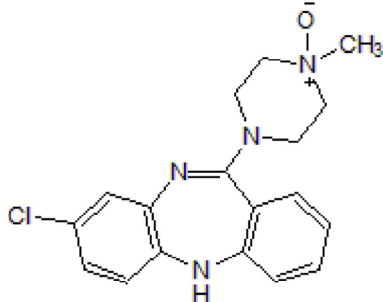
Batch Molecular Formula: C₁₈H₁₉ClN₄O. $\frac{3}{4}$ H₂O

Batch Molecular Weight: 356.33

Physical Appearance: Yellow solid

Minimum Purity: ≥98%

Batch Molecular Structure:



References:

Gomez et al (2017) Chemogenetics revealed: DREADD occupancy and activation via converted cloz. *Science* **357** 503. PMID: 28774929.

Nakajima et al (2016) G_s-coupled GPCR signalling in AgRP neurons triggers sustained increase in food intake. *Nat. Commun.* **8** 10268. PMID: 26743492.

Roth (2016) DREADDs for Neuroscientists. *Neuron* **89** 683. PMID: 26889809.

Storage: Store at RT

Solubility & Usage Info:

DMSO to 20 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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