

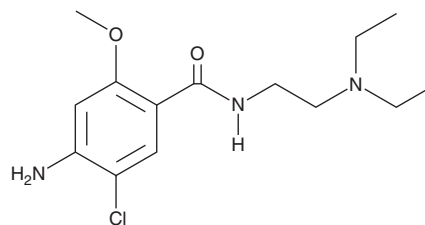
PRODUCT INFORMATION



Metoclopramide

Item No. 39844

CAS Registry No.: 364-62-5
Formal Name: 4-amino-5-chloro-N-[2-(diethylamino)ethyl]-2-methoxy-benzamide
MF: C₁₄H₂₂ClN₃O₂
FW: 299.8
Purity: ≥98%
Supplied as: A 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

Metoclopramide is supplied as a solid. A stock solution may be made by dissolving the metoclopramide in the solvent of choice, which should be purged with an inert gas. Metoclopramide is soluble in the organic solvent DMSO. Metoclopramide is slightly soluble in acetonitrile.

Metoclopramide is slightly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Metoclopramide is a dual antagonist of the serotonin (5-HT) receptor subtype 5-HT₃ and dopamine D₂ receptor (IC₅₀s = 308 and 483 nM, respectively).¹ It also reversibly inhibits acetylcholinesterase (AChE) isolated from human postmortem caudate nucleus (K_is = 9.3 and 82 μM for competitive and non-competitive inhibition, respectively).² Oral administration of metoclopramide inhibits emesis induced by the DNA cross-linking agent cisplatin (Item No. 13119) in ferrets (ED₅₀ = 6,170 μg/kg) and the dopamine receptor agonist apomorphine in dogs (ED₅₀ = 0.45 mg/kg).^{1,3} Metoclopramide also inhibits apomorphine-induced climbing and stereotypy in mice (ED₅₀s = 2.2 and 6.5 mg/kg, respectively).⁴ Formulations containing metoclopramide have been used in the treatment of gastroesophageal reflux disease (GERD) and diabetic gastroparesis.

References

1. Hirokawa, Y., Harada, H., Yoshikawa, T., *et al.* Synthesis and structure-activity relationships of 4-amino-5-chloro-N-(1,4-dialkylhexahydro-1,4-diazepin-6-yl)-2-methoxybenzamide derivatives, novel and potent serotonin 5-HT₃ and dopamine D₂ receptors dual antagonist. *Chem. Pharm. Bull. (Tokyo)* **50(7)**, 941-959 (2002).
2. Chemnitz, J.M., Haselmeyer, K.H., Gonska, B.D., *et al.* Indirect parasympathomimetic activity of metoclopramide: Reversible inhibition of cholinesterases from human central nervous system and blood. *Pharmacol. Res.* **34(1-2)**, 65-72 (1996).
3. Youssefyeh, R.D., Campbell, H.F., Klein, S., *et al.* Development of high-affinity 5-HT₃ receptor antagonists. 1. Initial structure-activity relationship of novel benzamides. *J. Med. Chem.* **35(5)**, 895-903 (1992).
4. Altar, C.A., Boyar, W.C., Wasley, A., *et al.* Dopamine neurochemical profile of atypical antipsychotics resembles that of D-1 antagonists. *Naunyn Schmiedebergs Arch. Pharmacol.* **338(2)**, 162-168 (1988).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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