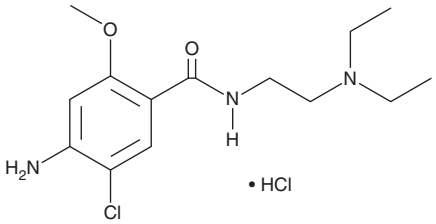
PRODUCT INFORMATION

Metoclopramide (hydrochloride)

Item No. 23360

CAS Registry No.:	7232-21-5
Formal Name:	4-amino-5-chloro-N-[2-(diethylamino)ethyl]-2-methoxy-benzamide, monohydrochloride
Synonym:	NSC 354467
MF:	$C_{14}H_{22}ClN_3O_2$ • HCl
FW:	336.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 213, 233, 278, 312 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

Metoclopramide (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the metoclopramide (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Metoclopramide (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of metoclopramide (hydrochloride) in these solvents is approximately 20 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 metoclopramide (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of metoclopramide (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

Metoclopramide is a dual antagonist of the serotonin (5-HT) receptor subtype 5-HT_3 and dopamine D_2 receptor (IC_{50}s = 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 (ED_{50} = 6,170 µg/kg) and the dopamine receptor agonist apomorphine in dogs (ED_{50} = 0.45 mg/kg).[1,3] Metoclopramide also inhibits apomorphine-induced climbing and stereotypy in mice (ED_{50}s = 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. Chem. Pharm. Bull. (Tokyo)* **50(7)**, 941-959 (2002).
2. hemnitius, J.M., Haselmeyer, K.H., Gonska, B.D., *et al. Pharmacol. Res.* **34(1-2)**, 65-72 (1996).
3. Youssefyeh, R.D., Campbell, H.F., Klein, S., *et al. J. Med. Chem.* **35(5)**, 895-903 (1992).
4. Altar, C.A., Boyar, W.C., Wasley, A., *et al. Naunyn Schmiedebergs Arch. Pharmacol.* **338(2)**, 162-168 (1988).

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