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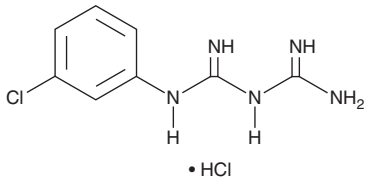
PRODUCT INFORMATION

1-(3-Chlorophenyl)biguanide (hydrochloride)

Item No. 34726

CAS Registry No.: 2113-05-5
Formal Name: N-(3-chlorophenyl)-imidodicarbonimidic diamide, monohydrochloride
Synonyms: *m*-Chlorophenylbiguanide, *meta*-Chlorophenylbiguanide, *m*-CPBG, *meta*-CPBG
MF: $C_8H_{10}ClN_5 \bullet HCl$
FW: 248.1
Purity: ≥95%
UV/Vis.: λ_{max}: 257 nm
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

1-(3-Chlorophenyl)biguanide (*m*-CPBG) (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the *m*-CPBG in the solvent of choice, which should be purged with an inert gas. *m*-CPBG (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of *m*-CPBG (hydrochloride) in these solvents is approximately 5, 20, and 30 mg/ml, respectively.

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 *m*-CPBG (hydrochloride) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of *m*-CPBG (hydrochloride) in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

m-CPBG is an agonist of the serotonin (5-HT) receptor subtype 5-HT_3.[1] It selectively binds 5-HT_3 over 5-HT_{1A} and 5-HT_2 receptors (K_is = 0.002, 10, and 10 µM, respectively) but also binds to high and low affinity sites on the dopamine transporter (DAT; IC_{50}s = 0.4 and 34.8 µM, respectively, in rat caudate putamen synaptosomal membranes).[2,3] *m*-CPBG induces depolarization of isolated rat vagus nerve and stimulates inositol phosphate formation in rat frontocingulate cortical slices (EC_{50}s = 0.05 and 4.2 µM, respectively).[1,4] It induces bradycardia, an effect that can be reversed by the 5-HT_3 receptor antagonist ondansetron, in anaesthetized cats (ED_{50} = 20.3 nmol/kg).[1]

References

1. Kilpatrick, G.J., Butler, A., Burridge, J., *et al.* 1-(m-chlorophenyl)-biguanide, a potent high affinity 5-HT_3 receptor agonist. *Eur. J. Pharmacol.* **182(1)**, 193-197 (1990).
2. Campbell, A.D., Womer, D.E., and Simon, J.R. The 5-HT_3 receptor agonist 1-(*m*-chlorophenyl)-biguanide interacts with the dopamine transporter in rat brain synaptosomes. *Eur. J. Pharmacol.* **290(2)**, 157-162 (1995).
3. Higgins, G.A., Joharchi, N., and Sellers, E.M. Behavioral effects of the 5-hydroxytryptamine$_3$ receptor agonists 1-phenylbiguanide and *m*-chlorophenylbiguanide in rats. *J. Pharmacol. Exp. Ther.* **264(3)**, 1440-1449 (1993).
4. Edwards, E., Hampton, E., Ashby, C.R., *et al.* 5-HT_3-like receptors in the rat medial prefrontal cortex: Further pharmacological characterization. *Brain Res.* **733(1)**, 21-30 (1996).

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