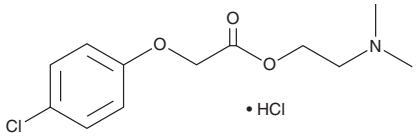
PRODUCT INFORMATION

Meclofenoxate (hydrochloride)

Item No. 28283

CAS Registry No.:	3685-84-5
Formal Name:	2-(4-chlorophenoxy)-acetic acid, 2-(dimethylamino)ethyl ester, monohydrochloride
Synonyms:	Dimethylaminoethyl 4-chlorophenoxyacetate, Methocynal
MF:	$C_{12}H_{16}ClNO_3 \bullet HCl$
FW:	294.2
Purity:	≥95%
UV/Vis.:	λ_{max}: 226, 280, 288 nm
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

Meclofenoxate (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the meclofenoxate (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Meclofenoxate (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of meclofenoxate (hydrochloride) in these solvents is approximately 3, 33, and 20 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 meclofenoxate (hydrochloride) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of meclofenoxate (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

Meclofenoxate is a nootropic agent.[1] It inhibits norepinephrine reuptake by isolated rat striatal synaptosomes (IC_{50} = 0.5 mM) and serotonin (5-HT) reuptake by isolated rat cortical synaptosomes (IC_{50} = 2.7 mM). Meclofenoxate increases survival of dopaminergic neurons in a *C. elegans psd-1* knockdown model of Parkinson's disease.[2] It reduces rotenone-induced depletion of dopamine and glutathione (GSH), lipid peroxidation, production of nitric oxide (NO), and cortical and cerebral damage, as well as enhances activity of catalase and superoxide dismutase in a rat model of Parkinson's disease when administered at a dose of 100 mg/kg.[3] Meclofenoxate (100 mg/kg) increases synaptic surface density and reduces age-induced decreases in synaptic numerical density in aged rats.[4] It also reduces neuronal lipofuscin pigment, a marker of aging, in the cerebral cortex and hippocampus and improves learning and memory in the T-maze in aged mice.[5] Formulations containing meclofenoxate have been used in the treatment of senile dementia.

References

1. Stancheva, S.L. and Alova, L.G. *Gen. Pharmacol.* **25(5)**, 981-987 (1994).
2. Wang, S., Zhang, S., Xu, C., *et al. PLoS One* **11(10)**, e0164465 (2016).
3. Verma, R. and Nehru, B. *Neurochem. Int.* **55(6)**, 369-375 (2009).
4. Bertoni-Freddari, C., Giuli, C., and Pieri, C. *Arch. Gerontol. Geriatr.* **1(4)**, 365-373 (1982).
5. Nandy, K. *J. Am. Geriatr. Soc.* **26(2)**, 74-81 (1978).

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