

Product Data Sheet

Product Name: γ -Lindane

Cat. No.: GC48313

Chemical Properties

Cas. No. 58-89-9

SMILES Cl[C@@H]1[C@@H](Cl)[C@H](Cl)[C@H](Cl)[C@@H](Cl)[C@@H]1Cl

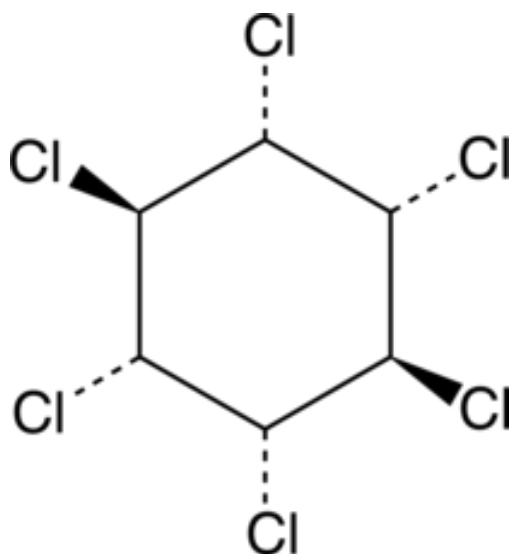
Formula C6H6Cl6 M.Wt 290.8

Solubility Chloroform: 50 mg/ml, Ethanol: >1 mg/ml, Methanol: >1 mg/ml, Water: 8.35 mg/ml
Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

γ -Lindane is an organochloro insecticide that is an antagonist of GABA_A receptors.¹ It inhibits GABA-stimulated chloride uptake by membrane vesicles isolated from rat cerebral cortex (IC₅₀ = 68 μ M). It binds selectively to insect GABA_A receptors over mammalian GABA_A receptors in membrane

Caution: Product has not been fully validated for medical applications. For research use only.

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preparations (IC_{50} s = 1, 12, 505, 833, and 150-1, 675 nM for fruit fly, house fly, human, mouse, and rat, respectively).^{2,3} It binds to a human recombinant β_3 homooligomer with similar selectivity as $\alpha_1\beta_3\gamma_2$ -containing receptors, indicating that the binding site for γ -lindane on GABA_A receptors is located on the β_3 subunit (IC_{50} s = 0.90, 21, and 306 nM for β_3 , $\alpha_1\beta_3\gamma_2$, and the native receptor, respectively).⁴ γ -Lindane blocks GABA- and glutamate-induced current responses in American cockroach neurons (IC_{50} s = 1.74 and 148 nM, respectively).⁵ It is toxic to mice and adult house flies (LD_{50} s = 40 and 5.5 mg/kg, respectively) and also kills head lice *in vitro* and inhibits hatching.^{4,6}

1.Obata, T., Yamamura, H.I., Malatynska, E., et al.Modulation of γ -aminobutyric acid-stimulated chloride influx by bicycloorthocarboxylates, bicyclophosphorus esters, polychlorocycloalkanes and other cage convulsantsJ. Pharmacol. Exp. Ther.244(3)802-806(1988) 2.Hainzl, D., Cole, L.M., and Casida, J.E.Mechanisms for selective toxicity of fipronil insecticide and its sulfone metabolite and desulfinyl photoproductChem. Res. Toxicol.11(12)1529-1535(1998) 3.Llorens, J., Suñol, C., Tussel, J.M., et al.Lindane inhibition of [³⁵S]TBPS binding to the GABA_A receptor in rat brainNeurotoxicol. Teratol.12(6)607-610(1990) 4.Ratra, G.S., Kamita, S.G., and Casida, J.E.Role of human GABA_A receptor β_3 subunit in insecticide toxicityToxicol. Appl. Pharmacol.172(3)233-240(2001) 5.Ihara, M., Ishida, C., Okuda, H., et al.Differential blocking actions of 4'-ethynyl-4-n-propylbicycloorthobenzoate (EBOB) and γ -hexachlorocyclohexane (γ -HCH) on γ -aminobutyric acid- and glutamate-induced responses of American cockroach neuronsInvert. Neurosci.5(3-4)157-164(2005) 6.Meinking, T.L., Taplin, D., Kalter, D.C., et al.Comparative efficacy of treatments for pediculosis capitis infestationsArch. Dermatol.122(3)267-271(1986)

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