



Product Information

(R)-(+)-Propranolol hydrochloride

Product Number **P 5544**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{16}H_{21}NO_2 \cdot HCl$
Molecular Weight: 295.8
CAS Number: 3506-09-0
 pK_a : 9.5 (24 °C)¹
Melting point: 163-164 °C²
Extinction coefficient: $E^{1\%} = 222$ (288 nm, acidified H_2O); 240 (290 nm, methanol); 143 (306 nm, methanol); 86 (319 nm, methanol)¹

Propranolol is a non-cardioselective beta blocker that is reported to have membrane-stabilizing properties, but does not possess intrinsic sympathomimetic activity.³

This product is a purified R-(+) isomer. The pharmacological properties of the optical isomers have been reported in experiments with anesthetized dogs and cats. The (-) isomer is 60-100 times more active than the (+) isomer in blocking the inotropic, chronotropic and vasodepressor actions of isoprenaline.⁴ The (-) isomer is much more active at blocking β -adrenergic stimulation.⁵ A review of the pharmacokinetics has been published.⁶

Propranolol is an inhibitor of Protein Kinase C.⁷

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Propranolol HCl is soluble in water and alcohol (10 mg/ml), yielding a clear, colorless solution. It is slightly soluble in chloroform and practically insoluble in ether, benzene, and ethyl acetate.^{2,3}

Storage/Stability

In aqueous solutions, propranolol decomposes with oxidation of the isopropylamine side-chain, accompanied by a reduction in pH and discoloration of the solution. Solutions of propranolol are most stable at pH 3. Propranolol decomposes rapidly in alkaline solutions.³

References

1. Clarke's Isolation and Identification of Drugs, Moffat, A. C. et al., eds, The Pharmaceutical Press (London, GB: 1986), p. 936.
2. The Merck Index, 12th ed., Entry# 8025.
3. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, GB: 1996), pp. 936-933.
4. Howe, R., and Shanks, R. G., Optical isomers of propranolol. *Nature*, **210(43)**, 1336-1338 (1966).
5. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), p. 347.
6. Silber, B. M., et al., Dose-dependent elimination of propranolol and its major metabolites in humans. *J. Pharm. Sci.*, **72(7)**, 725-732 (1983).
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