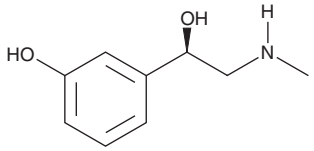
PRODUCT INFORMATION

L-Phenylephrine

Item No. 17205

CAS Registry No.: 59-42-7
Formal Name: 3-hydroxy-αR-[(methylamino)methyl]-benzenemethanol
Synonym: (R)-(–)-Phenylephrine
MF: $C_9H_{13}NO_2$
FW: 167.2
Purity: ≥98%
UV/Vis.: λ_{max}: 217, 277 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

L-Phenylephrine is supplied as a crystalline solid. A stock solution may be made by dissolving the L-phenylephrine in the solvent of choice, which should be purged with an inert gas. L-Phenylephrine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of L-phenylephrine 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 L-phenylephrine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of L-phenylephrine in PBS (pH 7.2) is approximately 15 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

L-Phenylephrine is an adrenergic α_{1A} receptor agonist (K_i = 1.4 µM) that demonstrates selectivity against the α_{1B} and α_{1C} receptor subtypes (K_is = 23.9 and 47.8 µM, respectively).[1] By stimulating adrenergic α_1 receptors, L-phenylephrine can induce aortic smooth muscle contractions, although reported relative affinity and potency values in rabbit are 5-fold weaker compared to that of L-norepinephrine.[2] This compound is frequently used to precontract smooth muscle in preparations designed to study the properties of various vasodilator agents.[3,4] Because L-phenylephrine acts on adrenergic α_1 receptors in the arterioles of the nasal mucosa to produce constriction, it has been examined clinically as an oral decongestant.[5]

References

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2. Besse, J.C. and Furchgott, R.F. Dissociation constants and relative efficacies of agonists acting on alpha adrenergic receptors in rabbit aorta. *J. Pharmacol. Exp. Ther.* **197(1)**, 66-78 (1976).
3. Dogan, M., Peker, R.O., Donmez, S., *et al*. Magnesium and diltiazem relaxes phenylephrine-precontracted rat aortic rings. *Interact. Cardiovasc. Thorac. Surg.* **15(1)**, 1-4 (2012).
4. Brunsden, A.M., Brookes, S.J.H., Bardhan, K.D., *et al*. Mechanisms underlying mechanosensitivity of mesenteric afferent fibers to vascular flow. *Am. J. Physiol. Gastrointest. Liver Physiol.* **293(2)**, G422-G428 (2007).
5. Hatton, R.C., Winterstein, A.G., McKelvey, R.P., *et al*. Efficacy and safety of oral phenylephrine: Systematic review and meta-analysis. *Ann. Pharmacother.* **41(3)**, 381-390 (2007).

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