L-Phenylephrine

Item No. 17205

CAS Registry No.: 59-42-7
Formal Name: 3-hydroxy-α-R-[(methylamino)methyl]-benzenemethanol
Synonym: (R)-(-)-Phenylephrine
MF: C9H13NO2
FW: 167.2
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis: λ_max = 217, 277 nm

Laboratory Procedures

For long term storage, we suggest that L-phenylephrine be stored as supplied at -20°C. It should be stable for at least two years.

L-Phenylephrine is supplied as a crystalline solid. A stock solution may be made by dissolving the L-phenylephrine in the solvent of choice. L-Phenylephrine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. 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.

L-Phenylephrine is an adrenergic α1A receptor agonist (K_i = 1.4 μM) that demonstrates selectivity against the α1β and α1C receptor subtypes (K_i = 23.9 and 47.8 μM, respectively). By stimulating adrenergic α1 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. This compound is frequently used to precontract smooth muscle in preparations designed to study the properties of various vasodilator agents. Because L-phenylephrine acts on adrenergic α1 receptors in the arterioles of the nasal mucosa to produce constriction, it has been examined clinically as an oral decongestant.

References


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