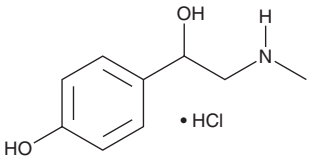
PRODUCT INFORMATION

(±)-Synephrine (hydrochloride)

Item No. 28398

CAS Registry No.: 5985-28-4
Formal Name: 4-hydroxy-α-[(methylamino)methyl]-benzenemethanol, monohydrochloride
MF: $C_9H_{13}NO_2 \bullet HCl$
FW: 203.7
Purity: ≥95%
UV/Vis.: λ_{max}: 226, 279 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

(±)-Synephrine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the (±)-synephrine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. (±)-Synephrine (hydrochloride) is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of (±)-synephrine (hydrochloride) in these solvents is approximately 30 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 (±)-synephrine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (±)-synephrine (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

(±)-Synephrine is an alkaloid with vasoconstrictor and metabolic activities.[1-3] It binds to α_{1A}-, α_{2A}-, and α_{2C}-adrenergic receptors (ARs; K_is = 78, 36.7, and 24.4 µM, respectively).[4] (±)-Synephrine is an agonist of α_{1A}-ARs in HEK293 cells (EC_{50} = 4 µM in a reporter assay) but not in CHO cells expressing α_{2A}- or α_{2C}-AR. It also acts as an antagonist of α_{1A}-, α_{2A}-, and α_{2C}-ARs, inhibiting L-phenylephrine-induced activation of α_{1A}-AR in HEK293 cells and activation of α_{2A}- and α_{2C}-ARs induced by the α_2-AR agonist medetomidine in CHO cells (IC_{50}s = 12.8, 26, and 27.3 µM, respectively, in reporter assays). (±)-Synephrine induces contractions in isolated rabbit aortic rings (EC_{50} = 6.2 µg/ml) and increases ligation-induced mean arterial pressure in rats when administered at a dose of 2 mg/kg per day.[1,5] It induces lipolysis in isolated rat and human adipocytes when used at concentrations of 100 and 1,000 µg/ml.[2] (±)-Synephrine (50 µM) increases phosphorylation of Akt and AMP-activated protein kinase (AMPK) and translocation of Glut4 to the plasma membrane, as well as increases insulin-induced glucose consumption in L6 muscle cells when used at concentrations ranging from 25 to 200 µM.[3]

References

1. Huang, Y.-T., Wang, G.-F., Chen, C.-F., *et al. Life Sci.* **57(22)**, 2011-2020 (1995).
2. Mercader, J., Wanecq, E., Chen, J., *et al. J. Physiol. Biochem.* **67(3)**, 443-452 (2011).
3. Hong, N.-Y., Cui, Z.-G., Kang, H.-K., *et al. Biochem. Biophys. Res. Commun.* **418(4)**, 720-724 (2012).
4. Ma, G., Bavadekar, S.A., Schaneberg, B.T., *et al. Planta Med.* **76(10)**, 981-986 (2010).
5. Bevan, J.A. and Osher, J.V. *J. Pharmacol. Exp. Ther.* **150(3)**, 370-374 (1965).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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