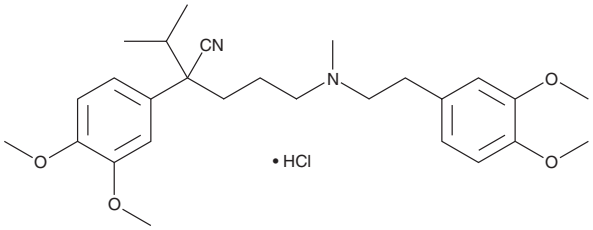
PRODUCT INFORMATION

Verapamil (hydrochloride)

Item No. 14288

CAS Registry No.: 152-11-4
Formal Name: α-[3-[[2-(3,4-dimethoxyphenyl)ethyl] methylamino]propyl]-3,4-dimethoxy-α-(1-methylethyl)-benzeneacetonitrile, monohydrochloride
Synonyms: NSC 272366, NSC 657799, (±)-Verapamil
MF: $C_{27}H_{38}N_2O_4 \bullet HCl$
FW: 491.1
Purity: ≥98%
UV/Vis.: λ_{max}: 205, 231, 280 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Verapamil (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the verapamil (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Verapamil (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of verapamil (hydrochloride) in DMF is approximately 16.7 mg/ml and approximately 10 mg/ml in ethanol and DMSO.

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 verapamil (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of verapamil (hydrochloride) in PBS (pH 7.2) is approximately 0.25 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Verapamil is the prototypical blocker of L-type calcium channels that produces excitation-contraction uncoupling in cardiac muscle by preventing the slow-inward current of calcium ions.[1] Verapamil can also block calcium fluxes in vascular smooth muscle. It has both peripheral and coronary vasodilator effects (IC_{50} = 0.38 µM in guinea pig aortic strip) and has been used to control hypertension, angina, cardiac arrhythmia, and vascular headaches.[2-4] Verapamil has also been used in cell biology as an inhibitor of drug efflux pump proteins such as P-glycoprotein, which are often over-expressed in certain tumor cell lines.[5]

References

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2. Dei, S., Romanelli, M.N., Scapecchi, S., *et al. J. Med. Chem.* **36(4)**, 439-445 (1993).
3. Dawson, J.R., Whitaker, N.H., and Sutton, G.C. *Br. Heart J.* **46(5)**, 508-512 (2013).
4. Campbell, T.J. and Williams, K.M. *Br. J. Clin. Pharmacol.* **52(Suppl 1)**, 307-319 (1998).
5. Rabindran, S.K., He, H., Singh, M., *et al. Cancer Res.* **58(24)**, 5850-5858 (1998).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM