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ProductInformation

(±)-Methoxyverapamil hydrochloride

Product Number **M 5644**
Store at Room Temperature

Product Description

Molecular Formula: $C_{28}H_{40}N_2O_5 \cdot HCl$
Molecular Weight: 521.1
CAS Number: 16662-47-8
Melting Point: 145-148 °C[1]
Synonyms: gallopamil hydrochloride, α-[3-[[2-(3,4-dimethoxyphenyl)ethyl]methylaminopropyl]-3,4,5-trimethoxy-α-(1-methylethyl)-benzeneacetonitrile hydrochloride; α-isopropyl-α-[(*N*-methyl-*N*-homoveratryl)-γ-aminopropyl]-3,4,5-trimethoxyphenylacetonitrile hydrochloride[1]

This product is the (D,L) racemic mixture of methoxyverapmil.

The methoxy analog of verapamil, methoxyverapamil, is a calcium-channel blocker that is used in ion channel and cell signaling research. *In vivo*, it exerts its effects on the vascular system and has antiarrythmic properties.[1,2] It has been proposed that methoxyverapamil and other phenylalkylamine calcium antagonists block Ca^{2+} release via the sarcoplasmic reticulum calcium channel/ryanodine receptor, possibly by inhibition of ryanodine binding to its low affinity sites.[3]

Methoxyverapamil has been used to probe the role of metabotropic glutamate receptors in N-methyl-D-aspartate receptor-dependent and voltage-gated calcium channel-dependent long-term potentiation in the dentate gyrus of rats.[4] Methoxyverapamil (100 μM) has been shown to block intracellular Ca^{2+} concentration in Chinese hamster ovary cells after agonist stimulation.[5] A study of Ca^{2+}-permeable plasma membrane channels from smooth muscle cells of rabbit pial arterioles used 10 μM methoxyverapamil to prevent voltage-dependent Ca^{2+} entry in the arterioles.[6]

HPLC protocols have been reported for the resolution of methoxyverapamil on an α_1-acid glycoprotein chiral stationary phase and an amylose tris-3,5-dimethylphenyl carbamate column.[7]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in methanol (50 mg/ml), with heat as needed, yielding a clear to slightly hazy, faint yellow solution. It is also soluble in water (5-10 mg/ml), with sonication as needed, and in ethanol (10 mg/ml).

References

1. The Merck Index, 12th ed., Entry# 4369.
2. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, UK: 1996), pp. 874.
3. Zucchi, R., Effect of gallopamil on excitation-contraction coupling. Gen. Pharmacol., **27(5)**, 749-753 (1996).
4. Manahan-Vaughan, D., et al., Subtype-specific involvement of metabotropic glutamate receptors in two forms of long-term potentiation in the dentate gyrus of freely moving rats. Neuroscience, **86(3)**, 709-721 (1998).
5. Hirabayashi, T., et al., Critical duration of intracellular Ca^{2+} response required for continuous translocation and activation of cytosolic phospholipase A_2. J. Biol. Chem., **274(8)**, 5163-5169 (1999).

6. Flemming, R., et al., Pharmacological profile of store-operated channels in cerebral arteriolar smooth muscle cells. Br. J. Pharmacol., **139(5)**, 955-965 (2003).

7. Fieger, H., and Blaschke, G., Direct determination of the enantiomeric ratio of verapamil, its major metabolite norverapamil and gallopamil in plasma by chiral high-performance liquid chromatography. J. Chromatogr., **575(2)**, 255-260 (1992).

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