Revision 1

#49079 Store at RT

Verapamil (Hydrochloride)

1 g

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Background

Verapamil (Hydrochloride) is a phenylalkylamine racemic mixture that inhibits the influx of extracellular calcium ions into myocardial and vascular smooth muscle cells by blocking L-type calcium channels and is commonly used in the treatment of high blood pressure, angina, and heart arrhythmias (1). Research has shown that Ca^{2+} channel blockers, such as Verapamil (Hydrochloride), can mediate Influenza A viral entry into cells (2). Studies have also shown Verapamil (Hydrochloride) to be an inhibitor of drug efflux pump proteins, such as P-glycoprotein, resulting in the reversal of multidrug resistance by tumor cells (3). As an L-type calcium channel antagonist, Verapamil (Hydrochloride) effectively inhibits Ebolaviruses (EBOV) infection with an IC_{50} value of 4 µM (4).

Molecular Formula

$C_{27}H_{38}N_2O_4$ • HCl

Molecular Weight

491.1 g/mol

Purity

>98%

CAS

152-11-4

Solubility

Soluble in water at 25 mg/ml.

Storage

Store lyophilized at room temperature, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, store at -20ºC and use within 3 months to prevent loss of potency. *Aliquot to avoid multiple freeze/thaw cycles.*

Directions for Use:

Verapamil (Hydrochloride) is supplied as a lyophilized powder. For a 10 mM stock, reconstitute 5 mg of powder in 1.02 ml of water. Working concentrations and length of treatment can vary depending on the desired effect.

Background References

1. Singh, B.N. (1986) *Br J Clin Pharmacol* 21 Suppl 2, 109S-121S.
2. Nugent, K.M. and Shanley, J.D. (1984) *Arch Virol* 81, 163-70.
3. Naito, M. and Tsuruo, T. (1989) *Cancer Res* 49, 1452-5.
4. Sakurai, Y. et al. (2015) *Science* 347, 995-8.

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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