

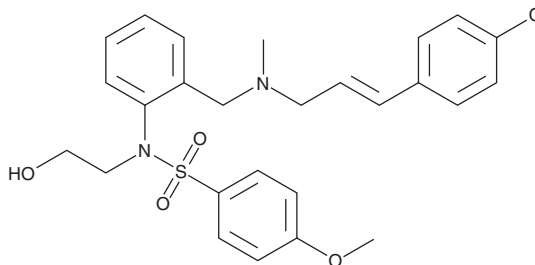
# Product Information



## KN-93

Item No. 13319

**CAS Registry No.:** 139298-40-1  
**Formal Name:** N-[2-[[[3-(4-chlorophenyl)-2-propen-1-yl]methylamino]methyl]phenyl]-N-(2-hydroxyethyl)-4-methoxybenzenesulfonamide  
**MF:** C<sub>26</sub>H<sub>29</sub>ClN<sub>2</sub>O<sub>4</sub>S  
**FW:** 501.0  
**Purity:** ≥98%  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A crystalline solid



### Laboratory Procedures

For long term storage, we suggest that KN-93 be stored as supplied at -20°C. It should be stable for at least two years.

KN-93 is supplied as a crystalline solid. A stock solution may be made by dissolving the KN-93 in an organic solvent purged with an inert gas. KN-93 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of KN-93 in these solvents is approximately 30 mg/ml.

KN-93 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, KN-93 should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. KN-93 has a solubility of approximately 0.25 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

KN-93 is a selective inhibitor of Ca<sup>2+</sup>/calmodulin-dependent kinase II (CaMKII), competitively blocking CaM binding to the kinase (K<sub>i</sub> = 370 nM).<sup>1</sup> It does not affect the activities of PKA, PKC, MLCK, or Ca<sup>2+</sup>-phosphodiesterase.<sup>1</sup> It inhibits histamine-induced aminopyrine uptake in parietal cells (IC<sub>50</sub> = 300 nM).<sup>2</sup> More recently, KN-93 has been used to implicate roles for CaMKII in Ca<sup>2+</sup>-induced Ca<sup>2+</sup> release in cardiac myocytes, constitutive phosphorylation of 5-lipoxygenase in 3T3 cells, and Ca<sup>2+</sup>-dependent activation of HIF-1α in colon cancer cells.<sup>3-5</sup>

### References

- Sumi, M., Kiuchi, K., Ishikawa, T., *et al.* The newly synthesized selective Ca<sup>2+</sup>/calmodulin dependent protein kinase II inhibitor KN-93 reduces dopamine contents in PC12h cells. *Biochemical and Biophysical Research Communications* **181**(3), 968-975 (1991).
- Mamiya, N., Goldenring, J.R., Tsunoda, Y., *et al.* Inhibition of acid secretion in gastric parietal cells by the Ca<sup>2+</sup>/calmodulin-dependent protein kinase II inhibitor KN-93. *Biochemical and Biophysical Research Communications* **195**(2), 608-615 (1993).
- Oestreich, E.A., Malik, S., Goonasekera, S.A., *et al.* Epac and phospholipase Cε regulate Ca<sup>2+</sup> release in the heart by activation of protein kinase Cε and calcium-calmodulin kinase II. *J. Biol. Chem.* **284**(3), 1514-1522 (2009).
- Flamand, N., Luo, M., Peters-Golden, M., *et al.* Phosphorylation of serine 271 on 5-lipoxygenase and its role in nuclear export. *J. Biol. Chem.* **284**(1), 306-313 (2009).
- Riganti, C., Doublier, S., Viarisio, D., *et al.* Artemisinin induces doxorubicin resistance in human colon cancer cells via calcium-dependent activation of HIF-1α and P-glycoprotein overexpression. *Brit. J. Pharmacol.* **156**, 1054-1066 (2009).

### Related Products

KN-62 - Item No. 13318 • KN-92 (hydrochloride) - Item No. 9000890

**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

### MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent via email to your institution.

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Cayman Chemical Company makes **no warranty or guarantee** of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman warrants only to the original customer that the material will meet our specifications at the time of delivery.

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