

# PRODUCT INFORMATION

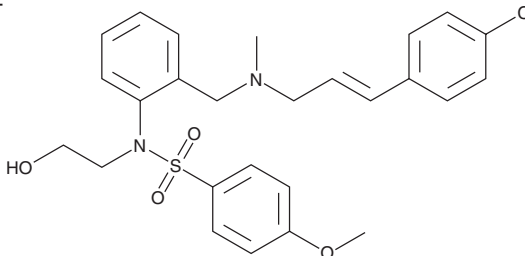


## KN-93

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%  
**UV/Vis.:** λ<sub>max</sub>: 251 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

KN-93 is supplied as a crystalline solid. A stock solution may be made by dissolving the KN-93 in the solvent of choice, which should be 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.

### Description

KN-93 is a selective inhibitor of Ca<sup>2+</sup>/calmodulin-dependent kinase type 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

1. 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 PC12th cells. *Biophys. Res. Commun.* **181(3)**, 968-975 (1991).
2. 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. *Biophys. Res. Commun.* **195(2)**, 608-615 (1993).
3. 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).
4. 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).
5. Riganti, C., Doublier, S., Viariso, D., *et al.* Artemisinin induces doxorubicin resistance in human colon cancer cells via calcium-dependent activation of HIF-1α and P-glycoprotein overexpression. *Br. J. Pharmacol.* **156(7)**, 1054-1066 (2009).

#### 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.

Copyright Cayman Chemical Company, 03/15/2024

#### 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