Print Date: May 9th 2013

Certificate of Analysis

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Product Name: KN-93 **Catalog No.: 1278** **Batch No.: 2**

CAS Number: 139298-40-1

IUPAC Name: *N*-[2-[[[3-(4-Chlorophenyl)-2-propenyl]methylamino]methyl]phenyl]-*N*-(2-hydroxyethyl)-4-methoxybenzenesulphonamide

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{26}H_{29}ClN_2O_4S.¼H_2O$

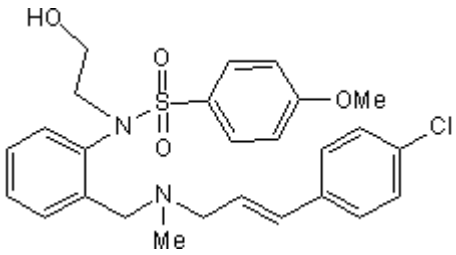
Batch Molecular Weight: 505.54

Physical Appearance: White fluffy crystals

Solubility: DMSO to 100 mM with gentle warming

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

TLC: R_f = 0.22 (Diethyl ether)

HPLC: Shows >99.7% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	61.77	5.88	5.54
Found	61.88	5.85	5.36

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Description:

Potent, cell permeable inhibitor of CaM kinase II (IC_{50} = 0.37 µM). Also a direct extracellular open channel blocker of voltage-gated potassium channels (IC_{50} = 307 nM for Kv1.5); independent of CaM kinase II inhibition.

Physical and Chemical Properties:

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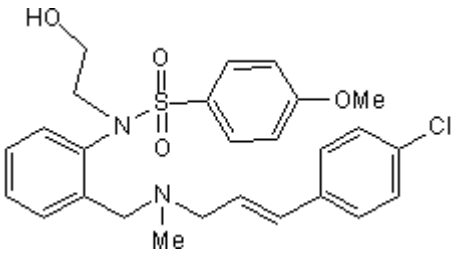
Physical Appearance: White fluffy crystals

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Store at +4°C

Solubility & Usage Info:

DMSO to 100 mM with gentle warming

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Sumi *et al* (1991) The newly synthesized selective Ca^{2+}/calmodulin dependent protein kinase II inhibitor KN-93 reduces dopamine content in PC12h cells. Biochem.Biophys.Res.Comm. ***181*** 968.

Anderson *et al* (1998) KN-93, an inhibitor of multifunctional Ca^{2+}/calmodulin-dependent protein kinase, decreases early afterdepolarizations in rabbit heart. J.Pharmacol.Exp.Ther. ***287*** 996. PMID: 9864285.

Patel *et al* (1999) Calcium/calmodulin-dependent phosphorylation and activation of human Cdc25-C at the G_2/M phase transition in HeLa cells. J.Biol.Chem. ***274*** 7958. PMID: 10075693.

Rezazadeh *et al* (2006) KN-93 (2-[*N*-(2-Hydroxyethyl)]-*N*-(4-methoxybenzenesulfonyl)]-amino-*N*-(4-chlorocinnamyl)-*N*-methylbenzylamine), a calcium/calmodulin-dependent protein kinase II inhibitor, is a direct extracellular blocker of voltage-gated potassium channels. J.Pharmacol.Exp.Ther. ***317*** 292. PMID: 16368898.