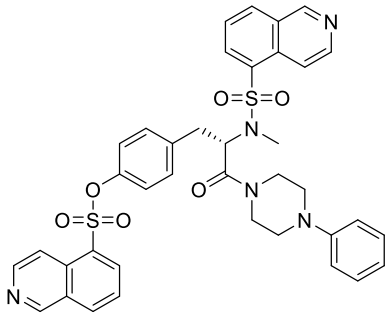
Product data sheet

MedKoo Cat#: 406815 Name: KN62 CAS: 127191-97-3 (free base) Chemical Formula: $C_{38}H_{35}N_5O_6S_2$ Exact Mass: 721.2029 Molecular Weight: 721.847	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
KN62 is a P2X7R antagonist (hP2X7 IC50 = 51 nM) and Ca2+/calmodulin-dependent protein kinase II inhibitor. KN62 inhibits the invasiveness of cancer cells in vitro and in vivo KN62 causes retrograde amnesia in the rat. KN62 attenuates glutamate release by inhibiting voltage-dependent Ca(2+)-channels. The effect of KN62 on Ca(2+)-influx appears to be specific to slowly-or non-inactivating conductances, and therefore presents KN62 as a potentially useful tool.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	30.0	41.56
DMF:PBS (pH 7.2) (1:2)	0.3	0.42
DMSO	75.55	104.66
Ethanol	1.0	1.39

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	1.39 mL	6.93 mL	13.85 mL
5 mM	0.28 mL	1.39 mL	2.77 mL
10 mM	0.14 mL	0.69 mL	1.39 mL
50 mM	0.03 mL	0.14 mL	0.28 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Gargett CE, Wiley JS. The isoquinoline derivative KN-62 a potent antagonist of the P2Z-receptor of human lymphocytes. Br J Pharmacol. 1997 Apr;120(8):1483-90. doi: 10.1038/sj.bjp.0701081. PMID: 9113369; PMCID: PMC1564633.
2. Minami H, Inoue S, Hidaka H. The effect of KN-62, Ca2+/calmodulin dependent protein kinase II inhibitor on cell cycle. Biochem Biophys Res Commun. 1994 Feb 28;199(1):241-8. doi: 10.1006/bbrc.1994.1220. PMID: 8123019.

In vivo study

1. Wolfman C, Izquierdo LA, Schröder N, Izquierdo I. Intra-hippocampal KN-62 hinders the memory of habituation acquired alone, but not simultaneously with a water-finding task. Behav Pharmacol. 1999 Feb;10(1):99-104. doi: 10.1097/00008877-199902000-00009. PMID: 10780306.
2. Schnabel R, Palmer MJ, Kilpatrick IC, Collingridge GL. A CaMKII inhibitor, KN-62, facilitates DHPG-induced LTD in the CA1 region of the hippocampus. Neuropharmacology. 1999 Apr;38(4):605-8. doi: 10.1016/s0028-3908(98)00229-9. PMID: 10221764.

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7. Bioactivity

Biological target:

KN-62 is a selective and reversible inhibitor of calmodulin-dependent protein kinase II (CaMK-II) with a Ki of 0.9 μM for rat brain CaMK-II.

In vitro activity

KN-62 potently antagonized ATP-stimulated Ba^{2+} influx into fura-2 loaded human lymphocytes with an IC_{50} of 12.7 +/- 1.5 nM (n = 3) and complete inhibition of the flux at a concentration of 500 nM. Similarly, KN-62 inhibited ATP-stimulated ethidium+ uptake, measured by time resolved flow cytometry, with an IC_{50} of 13.1 +/- 2.6 nM (n = 4) and complete inhibition of the flux at 500 nM.

Reference: Br J Pharmacol. 1997 Apr;120(8):1483-90. https://pubmed.ncbi.nlm.nih.gov/9113369/

In vivo activity

Immediate post-training intra-hippocampal administration of the calcium/calmodulin-dependent protein kinase II (CaMKII) inhibitor KN-62 (3.6 ng/side) attenuated memory of the water-finding task, but not that of the habituation acquired concomitantly. However, when the habituation was carried out alone in the absence of the water-finding task, its retention was inhibited by KN-62.

Reference: Behav Pharmacol. 1999 Feb;10(1):99-104. https://pubmed.ncbi.nlm.nih.gov/10780306/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.