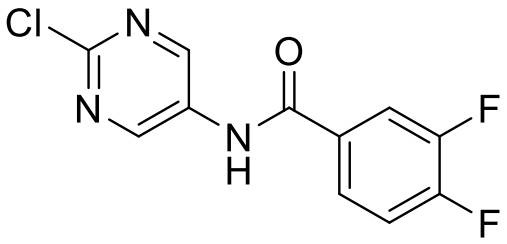
Product data sheet

MedKoo Cat#: 530943 Name: ICA069673 CAS: 582323-16-8 Chemical Formula: $C_{11}H_6ClF_2N_3O$ Exact Mass: 269.0167 Molecular Weight: 269.6358	
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:
ICA069673 is a heteromeric Kv7 channel activator. It is selective for Kv7.2/7.3 over Kv7.3/7.5 (EC50s = 0.69 and 14.3 μM, respectively). ICA-069673 inhibited spontaneous phasic, pharmacologically induced, and nerve-evoked contractions in DSM isolated strips in a concentration-dependent manner. . ICA-069673 decreased the global intracellular Ca(2+) concentration in DSM cells, an effect blocked by the L-type Ca(2+) channel inhibitor nifedipine. ICA-069673 hyperpolarized the membrane potential and inhibited spontaneous action potentials of isolated DSM cells, effects that were blocked in the presence of XE991.

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	111.26
DMSO	36.24	134.40
Ethanol	30.25	112.18

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.71 mL	18.54 mL	37.09 mL
5 mM	0.74 mL	3.71 mL	7.42 mL
10 mM	0.37 mL	1.85 mL	3.71 mL
50 mM	0.07 mL	0.37 mL	0.74 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. Wang AW, Yang R, Kurata HT. Sequence determinants of subtype-specific actions of KCNQ channel openers. J Physiol. 2017 Feb 1;595(3):663-676. doi: 10.1113/JP272762. Epub 2016 Sep 23. PMID: 27506413; PMCID: PMC5285613.
2. Provence A, Malysz J, Petkov GV. The Novel KV7.2/KV7.3 Channel Opener ICA-069673 Reveals Subtype-Specific Functional Roles in Guinea Pig Detrusor Smooth Muscle Excitability and Contractility. J Pharmacol Exp Ther. 2015 Sep;354(3):290-301. doi: 10.1124/jpet.115.225268. Epub 2015 Jun 18. PMID: 26087697; PMCID: PMC4538873.

In vivo study

TBD

7. Bioactivity
Biological target:

ICA-069673 is a KCNQ2/Q3 potassium channel activator with an IC50 of 0.69 μM.

Product data sheet

In vitro activity

These experiments reveal that KCNQ2 residues F168 and A181 in the S3 segment are essential determinants of ICA73 (ICA-069673) subtype specificity. Mutations at either position in KCNQ2 abolish the ICA73-mediated gating shift, but preserve RTG sensitivity. Interestingly, A181P mutant channels show little ICA73-mediated gating shift but retain current potentiation by the drug. Mutations (L198F and P211A), which introduce these critical KCNQ2 residues at corresponding positions in KCNQ3, transplant partial ICA73 sensitivity. These findings demonstrate that RTG and ICA73 act via distinct mechanisms, and also reveal specific residues that underlie subtype specificity of KCNQ channel openers.

Reference: J Physiol. 2017 Feb 1;595(3):663-676. https://pubmed.ncbi.nlm.nih.gov/27506413/

In vivo activity

TBD

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.