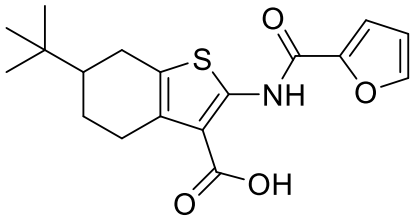
Product data sheet

MedKoo Cat#: 555104 Name: CaCCinh-A01 CAS#: 407587-33-1 Chemical Formula: $C_{18}H_{21}NO_4S$ Exact Mass: 347.1191 Molecular Weight: 347.429	
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:
CaCCinh-A01, also known as TMEM16 Blocker I, is a TMEM16 Blocker. CaCCinh-A01 is a non-selective inhibitor of calcium-activated chloride channels (CaCCs) that blocks ATP-stimulated chloride conductance in human salivary gland, intestinal, and bronchial epithelium (mean IC50 = 10 μM).

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
DMSO	69	198.60

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.88 mL	14.39 mL	28.78 mL
5 mM	0.58 mL	2.88 mL	5.76 mL
10 mM	0.29 mL	1.44 mL	2.88 mL
50 mM	0.06 mL	0.29 mL	0.58 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. Bill A, Hall ML, Borawski J, Hodgson C, Jenkins J, Piechon P, Popa O, Rothwell C, Tranter P, Tria S, Wagner T, Whitehead L, Gaither LA. Small molecule-facilitated degradation of ANO1 protein: a new targeting approach for anticancer therapeutics. J Biol Chem. 2014 Apr 18;289(16):11029-11041. doi: 10.1074/jbc.M114.549188. Epub 2014 Mar 5. PMID: 24599954; PMCID: PMC4036244.

2. Namkung W, Phuan PW, Verkman AS. TMEM16A inhibitors reveal TMEM16A as a minor component of calcium-activated chloride channel conductance in airway and intestinal epithelial cells. J Biol Chem. 2011 Jan 21;286(3):2365-74. doi: 10.1074/jbc.M110.175109. Epub 2010 Nov 17. PMID: 21084298; PMCID: PMC3023530.

In vivo study

1. Liu PY, Zhang Z, Liu Y, Tang XL, Shu S, Bao XY, Zhang Y, Gu Y, Xu Y, Cao X. TMEM16A Inhibition Preserves Blood-Brain Barrier Integrity After Ischemic Stroke. Front Cell Neurosci. 2019 Aug 6;13:360. doi: 10.3389/fncel.2019.00360. PMID: 31447648; PMCID: PMC6691060.

7. Bioactivity
Biological target:

Product data sheet

CaCCinh-A01 is an inhibitor of both TMEM16A and calcium-activated chloride channel (CaCC) with IC50s of 2.1 and 10 μM, respectively.

In vitro activity

It was found that CaCCinh-A01 reduces ANO1 protein levels by facilitating endoplasmic reticulum-associated, proteasomal turnover of ANO1. Washout of CaCCinh-A01 rescued ANO1 protein levels and resumed cell proliferation. Proliferation of newly derived CaCCinh-A01-resistant cell pools was not affected by CaCCinh-A01 as compared with the parental cells. Consistently, CaCCinh-A01 failed to reduce ANO1 protein levels in these cells, whereas ANO1 currents were still inhibited by CaCCinh-A01, indicating that CaCCinh-A01 inhibits cell proliferation by reducing ANO1 protein levels.

Reference: J Biol Chem. 2014 Apr 18;289(16):11029-11041. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/24599954/

In vivo activity

To determine the effect of TMEM16A inhibitors after ischemic stroke, the infarct size of mouse brains was measured by TTC at different time points. The results showed that Caccinh-A01 significantly reduced infarction: 29.50 (22.63–31.88) with MCAO-saline treatment vs. 17.25 (15.38–22.63) with MCAO-Caccinh-A01 treatment at 24 h ($p < 0.05$); 27.75 (23.63–32.25) with MCAO-saline treatment vs. 15.75 (12.13–21.23) with MCAO-Caccinh-A01 treatment at 72 h ($p < 0.05$; n = 6/group) (Figures 2A,B). Neurological severity scores, the grip strength test and rotarod test were applied to test motor function, sensorimotor coordination,and muscular strength on each mouse after ischemic injury. As shown in Figures 2C–E, mice treated with Caccinh-A01 manifested better behavioral performance at 24 and 72 h than mice in the saline group (NSS: 10.50 (9.25–11.00) with MCAO-saline treatment vs. 6.50 (5.75–10.00) with MCAO-Caccinh-A01 treatment at 24 h, $p < 0.01$; 9.50 (7.75–10.00) with MCAO-saline treatment vs. 5.00 (3.75–6.00) with MCAO-Caccinh-A01 treatment at 72 h, $p < 0.01$. Grip strength test: 55.50 (24.00–79.25) with MCAO-saline treatment vs. 81.50 (69.25–90.00) with MCAO-Caccinh-A01 treatment at 24 h, $p < 0.05$; 61.50 (53.00–86.75) with MCAO-saline treatment vs. 94.00 (81.00–106.25) with MCAO-Caccinh-A01 treatment at 72 h, $p < 0.05$. Rotarod test: 47.50 (20.75–80.25) with MCAO-saline treatment vs. 115.00 (74.75–196.25) with MCAO-Caccinh-A01 treatment at 24 h, $p < 0.01$; 64.00 (46.50–104.00) with MCAO-saline treatment vs. 137.00 (96.75–232.50) with MCAO-Caccinh-A01 treatment at 72 h, $p < 0.01$. n = 10/group).

Reference: Front Cell Neurosci. 2019 Aug 6;13:360. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/31447648/

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.