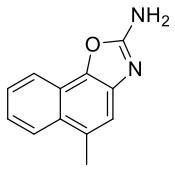
Product data sheet

MedKoo Cat#: 532702 Name: SKA-121 CAS#: 1820708-73-3 Chemical Formula: $C_{12}H_{10}N_2O$ Exact Mass: 198.0793 Molecular Weight: 198.23	
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:
SKA-121 is a novel KCa3.1-specific positive gating modulator.

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	19.82	100
Ethanol	9.91	50

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	5.04 mL	25.22 mL	50.45 mL
5 mM	1.01 mL	5.04 mL	10.09 mL
10 mM	0.5 mL	2.52 mL	5.04 mL
50 mM	0.1 mL	0.5 mL	1.01 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. Ohya S, Matsui M, Kajikuri J, Kito H, Endo K. Downregulation of IL-8 and IL-10 by the Activation of Ca2+-Activated K+ Channel KCa3.1 in THP-1-Derived M2 Macrophages. Int J Mol Sci. 2022 Aug 3;23(15):8603. doi: 10.3390/ijms23158603. PMID: 35955737; PMCID: PMC9368915.
2. Brown BM, Shim H, Zhang M, Yarov-Yarovoy V, Wulff H. Structural Determinants for the Selectivity of the Positive KCa3.1 Gating Modulator 5-Methylnaphtho[2,1-d]oxazol-2-amine (SKA-121). Mol Pharmacol. 2017 Oct;92(4):469-480. doi: 10.1124/mol.117.109421. Epub 2017 Jul 31. PMID: 28760780; PMCID: PMC5588545.

In vivo study

1. Oliván-Viguera A, Valero MS, Pinilla E, Amor S, García-Villalón ÁL, Coleman N, Laría C, Calvín-Tienza V, García-Otín ÁL, Fernández-Fernández JM, Murillo MD, Gálvez JA, Díaz-de-Villegas MD, Badorrey R, Simonsen U, Rivera L, Wulff H, Köhler R. Vascular Reactivity Profile of Novel KCa 3.1-Selective Positive-Gating Modulators in the Coronary Vascular Bed. Basic Clin Pharmacol Toxicol. 2016 Aug;119(2):184-92. doi: 10.1111/bcpt.12560. Epub 2016 Feb 29. PMID: 26821335; PMCID: PMC5720859.
2. Coleman N, Brown BM, Oliván-Viguera A, Singh V, Olmstead MM, Valero MS, Köhler R, Wulff H. New positive Ca2+-activated K+ channel gating modulators with selectivity for KCa3.1. Mol Pharmacol. 2014 Sep;86(3):342-57. doi: 10.1124/mol.114.093286. Epub 2014 Jun 23. PMID: 24958817; PMCID: PMC4152908.

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7. Bioactivity

Biological target:

SKA-121 is a positive allosteric modulator of KCa3.1 channels (EC50 = 109 nM). SKA-121 displays 40-fold selectivity for KCa3.1 over KCa2.3, and 200 to 400-fold selectivity over KV and NaV channels.

In vitro activity

SKA-121 may have potential in the treatment of cancer. SKA-121 impeded tumor immune surveillance escape and suppressed tumorigenicity and metastasis mediated by tumor-associated macrophages (TAMs). In THP-1-derived M2 macrophages, SKA-121 significantly decreased the expression of pro-tumorigenic cytokines IL-8 and IL-10 without affecting VEGF and TGF-β1 levels. Additionally, SKA-121 reversed elevated IL-8 and IL-10 levels through the inhibition of ERK-CREB and JNK-c-Jun cascades.

Reference: Int J Mol Sci. 2022 Aug 3;23(15):8603. https://pubmed.ncbi.nlm.nih.gov/35955737/

In vivo activity

SKA-121 has potential in disease treatment involving KCa3.1 channel modulation. SKA-121 selectively activated the KCa3.1 calcium-activated K(+) channel, showing 41-fold selectivity over KCa2.3 and exhibited high selectivity over other channels (KV, NaV, and CaV). SKA-121 shifted the calcium-concentration response curve of KCa3.1. SKA-121 significantly lowered mean arterial blood pressure in normotensive and hypertensive wild-type mice.

Reference: Mol Pharmacol. 2014 Sep;86(3):342-57. https://pubmed.ncbi.nlm.nih.gov/24958817/

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.