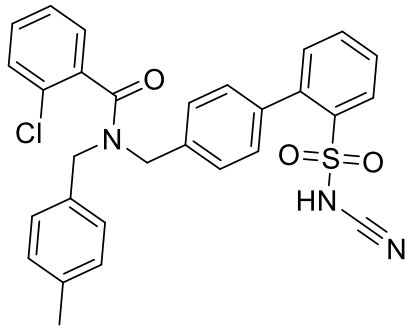
Product data sheet

MedKoo Cat#: 522671 Name: S0859 CAS#: 1019331-10-2 Chemical Formula: $C_{29}H_{24}ClN_3O_3S$ Exact Mass: 529.1227 Molecular Weight: 530.04	
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:
S0859 is a selective, high-affinity generic NBC inhibitor, potentially important for probing the transporter's functional role in heart and other tissues..

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
To be determined	To be determined	To be determined

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.89 mL	9.43 mL	18.87 mL
5 mM	0.37 mL	1.89 mL	3.77 mL
10 mM	0.19 mL	0.94 mL	1.89 mL
50 mM	0.04 mL	0.19 mL	0.38 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. Orlowski A, Vargas LA, Aiello EA, Álvarez BV. Elevated carbon dioxide upregulates NBCn1 Na+/HCO3(-) cotransporter in human embryonic kidney cells. Am J Physiol Renal Physiol. 2013 Dec 15;305(12):F1765-74. doi: 10.1152/ajprenal.00096.2013. Epub 2013 Sep 4. PMID: 24005470.
2. Larsen AM, Krogsgaard-Larsen N, Lauritzen G, Olesen CW, Honoré Hansen S, Boedtkjer E, Pedersen SF, Bunch L. Gram-scale solution-phase synthesis of selective sodium bicarbonate co-transport inhibitor S0859: in vitro efficacy studies in breast cancer cells. ChemMedChem. 2012 Oct;7(10):1808-14. doi: 10.1002/cmdc.201200335. Epub 2012 Aug 27. PMID: 22927258.

In vivo study

1. Jia M, Zhang Q, Guo X, Liu R, Liu S, Chen N, Wang Y, Wang Q, Wu J, Campbell SL. Na+/HCO3- Co-transporters Inhibitor S0859 Attenuates Global Cerebral Ischemia-reperfusion Injury of the CA1 Neurons in the Gerbil's Hippocampus. CNS Neurol Disord Drug Targets. 2023;22(7):1109-1119. doi: 10.2174/1871527321666220517121135. PMID: 35585807.
2. Ji M, Ryu HJ, Baek HM, Shin DM, Hong JH. Dynamic synovial fibroblasts are modulated by NBCn1 as a potential target in rheumatoid arthritis. Exp Mol Med. 2022 Apr;54(4):503-517. doi: 10.1038/s12276-022-00756-6. Epub 2022 Apr 12. PMID: 35414711; PMCID: PMC9076869.

7. Bioactivity
Biological target:

Product data sheet

S0859 reversibly inhibited NBC-mediated pH(i) recovery (K (i)=1.7 microM, full inhibition at approximately 30 microM). In HEPES-buffered superfusates, NHE-mediated pH(i) recovery was unaffected by 30 microM S0859. With CO(2)/HCO(3) (-) buffer, pH(i) recovery from intracellular alkalosis (mediated by Cl(-)/HCO(3) (-) and Cl(-)/OH(-) exchange) was also unaffected.

In vitro activity

This study describes an efficient method to synthesize S0859 and investigated its inhibitory effect on intracellular pH recovery after an acid load was confirmed in human and murine cancer cell lines. S0859 exhibited strong binding to plasma components, rendering it ineffective in isolated murine tissues at concentrations up to 50 μM

Reference: ChemMedChem. 2012 Oct;7(10):1808-14. https://pubmed.ncbi.nlm.nih.gov/22927258/

In vivo activity

This study found that ischemiareperfusion increased Na+ coupled HCO3-transporters' current, inhibited the excitability of hippocampal CA1 neurons, and led to apoptosis in CA1 neurons. S0859 protected CA1 neurons from ischemiareperfusion induced neuronal cell death, astrocyte accumulation, and spatial memory impairment. These findings indicate that S0859 could be a promising target to protect neuronal functions after ischemiareperfusion.

Reference: CNS Neurol Disord Drug Targets. 2023;22(7):1109-1119. https://pubmed.ncbi.nlm.nih.gov/35585807/

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.