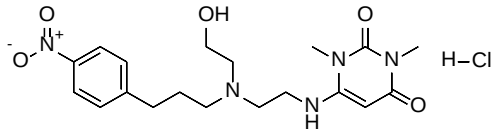
Product data sheet

MedKoo Cat#: 534791 Name: MS 551 CAS: 130656-51-8 Chemical Formula: $C_{19}H_{28}ClN_5O_5$ Exact Mass: 441.1779 Molecular Weight: 441.913	
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:
MS 551 is a bioactive chemical.

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	125.0	282.86

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.26 mL	11.31 mL	22.63 mL
5 mM	0.45 mL	2.26 mL	4.53 mL
10 mM	0.23 mL	1.13 mL	2.26 mL
50 mM	0.05 mL	0.23 mL	0.45 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. Suzuki K, Furukawa T, Koyama Y, Sagawa T, Nishimura M, Yamanaka M. Concentration-dependent block of sodium current in guinea pig ventricular myocytes by a class III antiarrhythmic agent, MS-551. J Cardiovasc Pharmacol. 1998 Nov;32(5):819-25. doi: 10.1097/00005344-199811000-00019. PMID: 9821857.
2. Martin DK, Nakaya Y, Wyse KR, Bursill JA, West PD, Campbell TJ. Inhibition of ATP-sensitive potassium channels in cardiac myocytes by the novel class III antiarrhythmic agent MS-551. Pharmacol Toxicol. 1995 Jul;77(1):65-70. doi: 10.1111/j.1600-0773.1995.tb01915.x. PMID: 8532614.

In vivo study

1. Chen J, Komori S, Li B, Tamura K, Hashimoto K. IK independent class III actions of MS-551 compared with sematilide and dofetilide during reperfusion in anaesthetized rats. Br J Pharmacol. 1996 Nov;119(5):937-42. doi: 10.1111/j.1476-5381.1996.tb15762.x. PMID: 8922743; PMCID: PMC1915953.
2. Kamiya J, Ishii M, Katakami T. Antiarrhythmic effects of MS-551, a new class III antiarrhythmic agent, on canine models of ventricular arrhythmia. Jpn J Pharmacol. 1992 Feb;58(2):107-15. doi: 10.1254/jjp.58.107. PMID: 1507517.

7. Bioactivity
Biological target:

Nifekalant hydrochloride (MS-551), a class III antiarrhythmic agent, is a IKr potassium channel blocker with an IC_{50} of 10 μM.

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In vitro activity

MS-551 in the range from 1 microM to 100 microM produced a concentration-dependent reduction of the open probability of the ATP-sensitive potassium channel, with an apparent ED50 of 30 microM. This reduced channel activity was due to a smaller number of channel openings per unit time, and the average duration of each opening of the channel was unaffected.

Reference: Pharmacol Toxicol. 1995 Jul;77(1):65-70. https://pubmed.ncbi.nlm.nih.gov/8532614/

In vivo activity

The antiarrhythmic and haemodynamic effects of three class III antiarrhythmic drugs, MS-551, sematilide and dofetilide, were examined in the coronary artery, ligation-reperfusion model of pentobarbitone-anaesthetized rats, a species deficient in functional cardiac IK. Before coronary ligation, 3 and 10 mg kg-1 MS-551 decreased the heart rate by 6% ($P < 0.01$) and 12% ($P < 0.01$), and increased mean arterial pressure (MAP) by 14% ($P < 0.05$) and 33% ($P < 0.01$), respectively. MS-551 at 3 and 10 mg kg-1, reduced the incidence of lethal VF to 50% and 20% ($P < 0.05$).

Reference: Br J Pharmacol. 1996 Nov;119(5):937-42. https://pubmed.ncbi.nlm.nih.gov/8922743/

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.