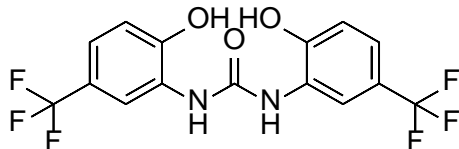


Product data sheet



MedKoo Cat#: 526648 Name: NS-1643 CAS: 448895-37-2 Chemical Formula: C ₁₅ H ₁₀ F ₆ N ₂ O ₃ Exact Mass: 380.0596 Molecular Weight: 380.2464	
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:

NS-1643 is a Human ether-a-go-go related gene (hERG) KV11.1 channel activator (EC₅₀ = 10.5 μM). NS1643 increased both steady-state and tail current at all voltages tested. The EC(50) value for HERG channel activation was 10.5 microM. HERG channel activation by small molecules such as NS1643 increases the repolarization reserve and presents an interesting new antiarrhythmic approach.

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	25.0	65.75
DMSO	52.63	138.40
DMSO:PBS (pH 7.2) (1:3)	0.25	0.66
Ethanol	41.34	108.72

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.63 mL	13.15 mL	26.30 mL
5 mM	0.53 mL	2.63 mL	5.26 mL
10 mM	0.26 mL	1.32 mL	2.63 mL
50 mM	0.05 mL	0.26 mL	0.53 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

- Casis O, Olesen SP, Sanguinetti MC. Mechanism of action of a novel human ether-a-go-go-related gene channel activator. *Mol Pharmacol.* 2006 Feb;69(2):658-65. doi: 10.1124/mol.105.019943. Epub 2005 Nov 11. PMID: 16284303.
- Hansen RS, Diness TG, Christ T, Demnitz J, Ravens U, Olesen SP, Grunnet M. Activation of human ether-a-go-go-related gene potassium channels by the diphenylurea 1,3-bis-(2-hydroxy-5-trifluoromethyl-phenyl)-urea (NS1643). *Mol Pharmacol.* 2006 Jan;69(1):266-77. doi: 10.1124/mol.105.015859. Epub 2005 Oct 11. PMID: 16219910.

In vivo study

- Breuer EK, Fukushima-Lopes D, Dalheim A, Burnette M, Zartman J, Kaja S, Wells C, Campo L, Curtis KJ, Romero-Moreno R, Littlepage LE, Niebur GL, Hoskins K, Nishimura MI, Gentile S. Potassium channel activity controls breast cancer metastasis by affecting β-catenin signaling. *Cell Death Dis.* 2019 Feb 21;10(3):180. doi: 10.1038/s41419-019-1429-0. PMID: 30792401; PMCID: PMC6385342.

Product data sheet



7. Bioactivity

Biological target:

NS1643 is a partial agonist of human ether-a-go-go-related gene (hERG) K⁺ channels with an EC₅₀ of 10.5 μM.

In vitro activity

1,3-Bis-(2-hydroxy-5-trifluoromethyl-phenyl)-urea (NS1643) is a newly discovered activator of human ether-a-go-go-related gene (hERG) K(+) channels. Here, this study characterizes the effects of this compound on cloned hERG channels heterologously expressed in *Xenopus laevis* oocytes. When assessed with 2-s depolarizations, NS1643 enhanced the magnitude of wild-type hERG current in a concentration- and voltage-dependent manner with an EC(50) of 10.4 microM at -10 mV. NS1643 shifted the voltage dependence of inactivation by +21 mV at 10 microM and +35 mV at 30 microM, but it did not alter the voltage dependence of activation of hERG channels.

Reference: Mol Pharmacol. 2006 Feb;69(2):658-65. <https://pubmed.ncbi.nlm.nih.gov/16284303/>

In vivo activity

In order to examine whether stimulation of Kv11.1 channel activity would inhibit BC growth and metastasis in vivo, this study established human-derived TNBC xenograft tumors using MDA-MB-231 BC cells in NOD-scid IL2Rγnull (NSG) mice. As previously observed in nude mice, NS1643-treated NSG mice exhibited a persistent and significant reduction of tumor growth throughout the study compared with control mice. (Fig. 1a). When visible, metastatic liver tumors in the NS1643-treated group were significantly smaller than those in the control group (Fig. 1c).

Reference: Cell Death Dis. 2019 Feb 21;10(3):180. <https://pubmed.ncbi.nlm.nih.gov/30792401/>

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.