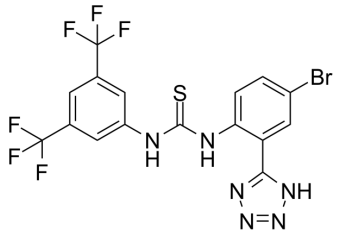
NS 11021

Cat. No.:	HY-13103
CAS No.:	956014-19-0
Molecular Formula:	$C_{16}H_9BrF_6N_6S$
Molecular Weight:	511.24
Target:	Potassium Channel
Pathway:	Membrane Transporter/Ion Channel
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (195.60 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.9560 mL	9.7801 mL	19.5603 mL
	5 mM	0.3912 mL	1.9560 mL	3.9121 mL
	10 mM	0.1956 mL	0.9780 mL	1.9560 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.07 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.07 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

NS 11021 is a potent and specific Ca^{2+}-activated big-conductance K^+ Channels (KCa1.1 channels) activator. NS 11021 at concentrations above 0.3 μM activates KCa1.1 in a concentration-dependent manner by parallelshifting the channel activation curves to more negative potentials[1].

IC_{50} & Target

Ca^{2+}-activated big-conductance K^+ Channels[1]

In Vitro

NS 11021 (1-30 μM) increases the current of hKCa1.1 from 2 μA to 4 μA at the concentration of 3 μM and can activate the hKCa1.1 expression channel in a dose-dependent manner in X. laevis oocytes[1].
NS 11021 (3 μM) increases hKCa1.1 current for channels by 171 % which repeatedly shifts between open and closed structures while increases the hKCa1.1 current by 187 % for channels kept in closed conformation in X. laevis oocytes[1].
NS 11021 (0-10 μM) can enhance hKCa1.1 currents in a concentration-dependent manner in monoclonal HEK293 cells stably

expressing hKCa1.1[1].

NS 11021 (5 or 50 μM) has no effect on resting membrane potential (RMP), while significantly increasing action potential (AP) rise time in a dose-dependent manner in frogs gastrocnemius muscles. NS 11021 completely reverses the deleterious effects of hydrogen peroxide on the AP repolarization phase in skeletal muscle fibers[2].

NS 11021 (1 μM) effectively attenuates mitoBK (mitochondrial big-conductance calcium-activated K+) channel damage, mitochondrial respiratory dysfunction, depolarization, superoxide production and cell death induced by CS + RW (cold storage (18 h) and rewarming (2 h)) in rat kidney proximal tubular epithelial (NRK) cells[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Bo Hjorth Bentzen, et al. The small molecule NS11021 is a potent and specific activator of Ca2+-activated big-conductance K+ channels. Mol Pharmacol. 2007 Oct;72(4):1033-44

[2]. Cagil Coskun, et al. BK channel openers NS1619 and NS11021 reverse hydrogen peroxide-induced membrane potential changes in skeletal muscle. J Recept Signal Transduct Res. 2020 Oct;40(5):449-455.

[3]. Stephen Shrum, et al. Specific BK Channel Activator NS11021 Protects Rat Renal Proximal Tubular Cells from Cold Storage-Induced Mitochondrial Injury In Vitro. Biomolecules. 2019 Dec 4;9(12):825.

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