NSC 23766 trihydrochloride

Cat. No.: HY-15723A

CAS No.: 1177865-17-6

Molecular Formula: $C_{24}H_{38}Cl_3N_7$

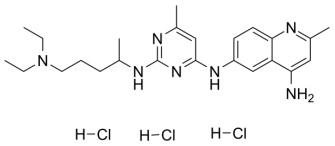
Molecular Weight: 530.96

Target: Ras; Apoptosis

Pathway: GPCR/G Protein; MAPK/ERK Pathway; Apoptosis

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 33.33 mg/mL (62.77 mM; Need ultrasonic)

H_2O : ≥ 32 mg/mL (60.27 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.8834 mL	9.4169 mL	18.8338 mL
	5 mM	0.3767 mL	1.8834 mL	3.7668 mL
	10 mM	0.1883 mL	0.9417 mL	1.8834 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 110 mg/mL (207.17 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.71 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.71 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

NSC 23766 trihydrochloride is an inhibitor of Rac1 activation.

In Vitro

NSC 23766 (100 μM) treatment effectively inhibits polar body emission in a dose-dependent manner. NSC 23766 (200 μM) increases the percentage of morphologically abnormal spindles of oocytes. In NSC 23766-treated oocytes, the p-MAPK protein expression is significantly decreased[2]. NSC23766 (50 μM) plus 100 ng/mL Jagged1, GDF9 and BMP15, reduces the number of germLine cell cysts and increases the number of primordial follicles[3]. NSC23766 significantly inhibits GTP-Rac1 activity and phosphorylation of Rac1-PAK, ERKs and p38 MAPK in the spinal dorsal horn neurons[4].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	NSC23766 (2.5 mg/kg/day, i.p.) significantly attenuates the onset of spontaneous diabetes in NOD mice, without significant effects on the growth (body weights) of the mice. NSC23766 significantly increases the expression of Rac1 and CHOP, a marker for ER-stress, in islets from NOD mice[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [4]	Briefly, fresh spinal cord tissue of the lumbar enlargement is homogenised in the presence of protease and phosphatase inhibitors and lysed with buffer. After being centrifuged at 12,000× g for 5 min at 4°C, the supernatants are collected and incubated with PAK-PBD beads at 4°C on a rotator for 1 h and then the beads are pelleted through centrifugation at 5000× g for 3 min at 4°C. The resulting pellet is resuspended in LaemmLi buffer and boiled for 2 min. The bead samples are subjected to Western blot analysis. Total Rac1 in each sample is also determined by Western blot analysis. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Balb/c control and NOD mice are at 7 weeks of age and are divided into four groups (n=8/group). At 8 weeks of age two groups of experimental animals (Balb/c and NOD) receive NSC23766 (2.5 mg/kg/day, i.p./daily) and other two groups, which serve as control Balb/c and NOD mice and receive equal volume of saline. The body weights and blood glucose are monitored every week for 34 weeks. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Metab. 2022 Dec 19.
- Bioact Mater. 2021 Jun 1.
- Adv Sci (Weinh). 2021 Mar 8;8(10):2004000.
- Cell Death Dis. 2022 Feb 17;13(2):158.
- Front Immunol. 2021 Aug 2;12:686846.

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REFERENCES

[1]. Veluthakal R, et al. NSC23766, a Known Inhibitor of Tiam1-Rac1 Signaling Module, Prevents the Onset of Type 1 Diabetes in the NOD Mouse Model. Cell Physiol Biochem. 2016;39(2):760-7.

[2]. Song SJ, et al. Inhibition of Rac1 GTPase activity affects porcine oocyte maturation and early embryo development. Sci Rep. 2016 Oct 3;6:34415

[3]. Zhao L, et al. Rac1 modulates the formation of primordial follicles by facilitating STAT3-directed Jagged1, GDF9 and BMP15 transcription in mice. Sci Rep. 2016 Apr 6;6:23972

[4]. Wang Y, et al. Involvement of Rac1 signalling pathway in the development and maintenance of acute inflammatory pain induced by bee venom injection. Br J Pharmacol. 2016 Mar;173(5):937-50

Caution: Product has not been fully validated for medical applications. For research use only.

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