

trans-Ned 19

Chemical Properties

CAS No. : 1354235-96-3
Formula: C30H31FN4O3
Molecular Weight: 514.59
Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	trans-Ned 19 is a nicotinic acid adenine dinucleotide phosphate (NAADP) antagonist and two-pore channel (TPC) blocker. It binds with high affinity to the NAADP receptor to inhibit NAADP-dependent lysosomal/endolysosomal calcium release without affecting IP3 or cADPR-mediated calcium signaling pathways. Functionally, trans-Ned 19 inhibits glucose-induced calcium oscillations in pancreatic islets and low histamine concentration-induced endothelium-dependent vasodilation, and reduces Ebola virus infection of host cells. In immunomodulation, NAADP signaling blockade by trans-Ned 19 promotes the conversion of mouse Th17 cells to regulatory T cells (Tregs) and shows protective effects in intestinal inflammation models.
Targets(IC50)	Calcium Channel
In vitro	trans-Ned 19 (25-100 μ M; 1 h) inhibits T-cell receptor (TCR)-stimulated Ca^{2+} signaling, cell activation, and proliferation in primary immature $CD4^+$ T cells from C57BL/6N mice [1]. trans-Ned 19 (25-50 μ M; 10 min) inhibits norepinephrine (HY-13715)-induced Ca^{2+} elevation in rat aortic smooth muscle cells in a concentration-dependent manner [2]. trans-Ned 19 (100 μ M; 30 min) significantly increased the rate of spontaneous acrosome reaction in the acrosome reaction assay of permeabilized mouse sperm [3].
In vivo	trans-Ned 19 (20 mg/kg; intraperitoneal injection; administered once 2 hours prior to the first injection of anti-CD3 mAb, followed by a second dose 48 hours later) reduced disease severity in a mouse model of anti-CD3 mAb-induced intestinal inflammation, as evidenced by reduced weight loss [1].

Solubility Information

Solubility	DMSO: 80 mg/mL (155.46 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9433 mL	9.7165 mL	19.4329 mL
5 mM	0.3887 mL	1.9433 mL	3.8866 mL
10 mM	0.1943 mL	0.9716 mL	1.9433 mL
50 mM	0.0389 mL	0.1943 mL	0.3887 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Nawrocki M, et al. Trans-Ned 19-Mediated Antagonism of Nicotinic Acid Adenine Nucleotide-Mediated Calcium Signaling Regulates Th17 Cell Plasticity in Mice. *Cells*. 2021 Nov 5;10(11):3039.

Trufanov SK, et al. The Role of Two-Pore Channels in Norepinephrine-Induced $[Ca^{2+}]_i$ Rise in Rat Aortic Smooth Muscle Cells and Aorta Contraction. *Cells*. 2019 Sep 25;8(10):1144.

Arndt L, et al. NAADP and the two-pore channel protein 1 participate in the acrosome reaction in mammalian spermatozoa. *Mol Biol Cell*. 2014 Mar;25(6):948-64.

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