

Product Data Sheet

Product Name: Nexinhib20

Cat. No.: GC46184

Chemical Properties

Cas. No. 331949-35-0

Chemical Name 4,4-dimethyl-1-(3-nitrophenyl)-2-(1H-1,2,4-triazol-1-yl)-1-penten-3-one

SMILES O=C(C(C)(C)C)/C(N1N=CN=C1)=C/C2=CC([N+])([O-])=O)=CC=C2

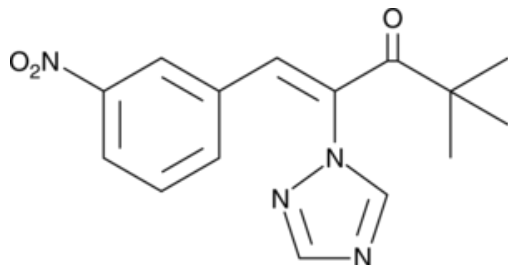
Formula C₁₅H₁₆N₄O₃ M.Wt 300.3

Solubility 15mg/mL in ethanol, 30mg/mL in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines N417 cells

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

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Preparation Method N417 cells were cultured in RPMI-1640 medium containing 10% fetal bovine serum (FBS) and 1% penicillin/streptomycin. Cells were cultured in an incubator at 37°C and 5% CO₂. The cells were seeded at a density of 1×10^4 cells per well in a 96-well plate and treated with different concentrations of Nexinhib20 (0, 1, 2.5, 5, 7.5, 10, and 20µM) at 37°C for 48 hours. Then, the cell viability was analyzed.

Reaction Conditions 0, 1, 2.5, 5, 7.5, 10, and 20µM; 48h

Applications Nexinhib20 treatment reduced the cell viability of N417 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models C57BL/6J wild-type mice

Preparation Method C57BL/6J wild-type mice were housed in a standard animal room with a standard rodent chow diet. Mice were subjected to 35 minutes of myocardial ischemia and 1 hour (for multi-photon microscopy and flow cytometry) or 22-26 hours of reperfusion. Nexinhib20 (100mM; 10µl in DMSO per mouse) or vehicle control was administered i.p. 30 minutes before reperfusion. After occlusion for 35 minutes, reperfusion was initiated by releasing the ligature and removing the PE-10 tubing. The chest wall was closed, the mice were extubated, and body temperature was maintained by use of a 37°C warm pad. Hearts were harvested 1 or 22-26 hours later for analysis.

Dosage form 100mM (in 10µl DMSO) for once; i.p.

Applications Nexinhib20 treatment significantly decreased infarct size after myocardial ischemia-reperfusion injury in mice.

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References:

- [1] Irep N, Inci K, Tokgun P E, et al. Exosome inhibition improves response to first-line therapy in small cell lung cancer[J]. Journal of Cellular and Molecular Medicine, 2024, 28(4): e18138.
- [2] Liu W, Cronin C G, Cao Z, et al. Nexinhib20 Inhibits Neutrophil Adhesion and β 2 Integrin Activation by Antagonizing Rac-1–Guanosine 5'-Triphosphate Interaction[J]. The Journal of Immunology, 2022, 209(8): 1574-1585.

Background

Nexinhib20 is an inhibitor of neutrophil exocytosis, with an IC₅₀ value of 2.6 μ M for targeting Rab27a-JFC1 binding [1]. Nexinhib20 limits β 2 integrin mobilization and availability at the cell surface while indirectly affecting active integrin avidity [2]. Nexinhib20 has been widely used to inhibit neutrophil adhesion and β 2 integrin activation[3].

In vitro, Nexinhib20 treatment for 48 hours significantly inhibited the viability of N417 cells, H524 cells, and N417 H889 cells, with IC₅₀ values of 12.91 μ M, 1.55 μ M and 8.58 μ M, respectively [4]. Treatment with 5 μ M Nexinhib20 for 48 hours enhanced the immunosuppressive function of eosinophils derived from patients with allergic rhinitis (AR)[5]. Treatment with 10 μ M Nexinhib20 for 15 minutes reversed the increase in Fc γ RI in neutrophils stimulated by heat-aggregated IgG and inhibited the production of ROS[6].

In vivo, Nexinhib20 treatment via intraperitoneal injection at a dose of 20mg/kg, twice a week for 4 weeks, significantly inhibited tumor growth in a mouse xenograft model derived from pancreatic ductal adenocarcinoma[7]. Intraperitoneal injection of a single dose of Nexinhib20 (100mM in 10 μ l DMSO) 30 minutes before reperfusion inhibited the recruitment of neutrophils and significantly reduced the infarct area in mice after myocardial ischemia/reperfusion injury[8].

References:

- [1] Johnson J L, Ramadass M, He J, et al. Identification of neutrophil exocytosis inhibitors (Nexinhibs), small molecule inhibitors of neutrophil exocytosis and inflammation: druggability of the small GTPase Rab27a[J]. Journal of Biological Chemistry, 2016, 291(50): 25965-25982.
- [2] Askari K, Johnson J L, Shukla A, et al. Nexinhib20 inhibits JFC1-mediated mobilization of a subset

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of CD11b/CD18+ vesicles decreasing integrin avidity, but does not inhibit Rac1[J]. Journal of Leukocyte Biology, 2025, 117(4): qiaf012.

[3] Fan Z, Liu W, Cronin C G, et al. Nexinhib20 prevents myocardial ischemia-reperfusion injury by inhibiting neutrophil adhesion and β 2 integrin activation[J]. The FASEB Journal, 2022, 36.

[4] Irep N, Inci K, Tokgun P E, et al. Exosome inhibition improves response to first-line therapy in small cell lung cancer[J]. Journal of Cellular and Molecular Medicine, 2024, 28(4): e18138.

[5] Liao Y, Li M, Song S, et al. The Immunosuppressive Functions of Eosinophils Are Compromised in Patients With Allergic Rhinitis, Particularly Concerning Rab27a Expression[J]. Immunity, Inflammation and Disease, 2024, 12(12): e70091.

[6] Huot S, Laflamme C, Fortin P R, et al. IgG-aggregates rapidly upregulate Fc γ RI expression at the surface of human neutrophils in a Fc γ RII-dependent fashion: a crucial role for Fc γ RI in the generation of reactive oxygen species[J]. The FASEB Journal, 2020, 34(11): 15208-15221.

[7] Ruivo C F, Bastos N, Adem B, et al. Extracellular vesicles from pancreatic cancer stem cells lead an intratumor communication network (EVNet) to fuel tumour progression[J]. Gut, 2022, 71(10): 2043-2068.

[8] Liu W, Cronin C G, Cao Z, et al. Nexinhib20 Inhibits Neutrophil Adhesion and β 2 Integrin Activation by Antagonizing Rac-1–Guanosine 5'-Triphosphate Interaction[J]. The Journal of Immunology, 2022, 209(8): 1574-1585.

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