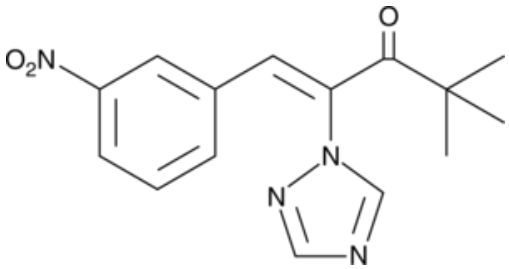
Product Data Sheet

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

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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% CO_2. 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.

Caution: Product has not been fully validated for medical applications. For research use only.
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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 β2 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 IC_{50} value of 2.6μM for targeting Rab27a-JFC1 binding [1]. Nexinhib20 limits β2 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 β2 integrin activation[3].

In vitro, Nexinhib20 treatment for 48 hours significantly inhibited the viability of N417 cells, H524 cells, and N417 H889 cells, with IC_{50} values of 12.91μM, 1.55μM and 8.58μM, respectively [4]. Treatment with 5μM Nexinhib20 for 48 hours enhanced the immunosuppressive function of eosinophils derived from patients with allergic rhinitis (AR)[5]. Treatment with 10μM Nexinhib20 for 15 minutes reversed the increase in FcgRI 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 adenocarcinom[7]. Intraperitoneal injection of a single dose of Nexinhib20 (100mM in 10μl 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 β2 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 FcgRI expression at the surface of human neutrophils in a FcgRII-dependent fashion: a crucial role for FcgRI 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 β2 Integrin Activation by Antagonizing Rac-1–Guanosine 5′-Triphosphate Interaction[J]. The Journal of Immunology, 2022, 209(8): 1574-1585.

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