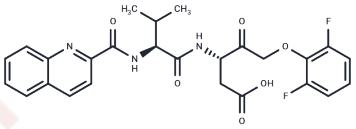
Data Sheet (Cat.No.T0282)

TargetMol

Q-VD-OPH

Chemical Properties



CAS No. : 1135695-98-5

Formula: C26H25F2N3O6

Molecular Weight: 513.5

Storage: Keep away from moisture,Store at low temperature
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	Q-VD-OPh is an irreversible caspase inhibitor with an IC50 value of 48 nM against caspase-7 and between 25 and 400 nM against caspase-1, 3, 8, 9, 10, 12. Q-VD-OPh inhibits HIV infection and can cross the blood-brain barrier.
Targets(IC50)	Caspase,HIV Protease
In vitro	**METHODS**: The apoptosis of cardiomyocytes treated with Q-VD-OPH was detected by Flow Cytometry **RESULTS**: Q-VD-OPH could protect cardiomyocytes from virus-induced apoptosis. [1]
In vivo	**METHODS**: To study the effects of Q-VD-OPH on apoptosis, immune response, and virus replication, SIVmac251 virus was administered intravenously to Chinese macaques to mimic HIV infection, and Q-VD-OPH (20 mg/kg) was administered intravenously to Chinese macaques on days 5, 7, 9, 11, and 14. **RESULTS**: Q-VD-OPH significantly reduced the level of apoptosis of T cells in peripheral lymph nodes. The number of TUNEL+ cells was significantly lower in the Q-VD-OPh treated group than in the untreated group. Q-VD-OPH treatment significantly increased CD4+ T cell count and CD4/CD8 ratio and decreased viral replication. [2] **METHODS**: To study the protective effect of Q-VD-OPH on ischemic acute renal failure (ARF), Q-VD-OPH (120 mg/kg) was intraperitoneally injected into mice. **RESULTS**: Q-VD-OPH inhibited the expression of caspase-1 and IL-18 and neutrophil infiltration in ischemic ARF mice. [3] **METHODS**: To study the protective effect of Q-VD-OPH on myocardial injury, Q-VD-OPH (50 mg/kg) was intraperitoneally injected into virus-infected mice on days 3 to 6. **RESULTS**: Q-VD-OPH protected against virus-induced myocardial injury by inhibiting caspase activity. [1] **METHODS**: To study the therapeutic effect of Q-VD-OPH on AD, TgCRND8 mice were intraperitoneally injected with Q-VD-OPH (10 mg/kg) three times a week for three months. **RESULTS**: Q-VD-OPH inhibited caspase-7 activation and the pathological changes associated with tau protein, including caspase cleavage. [4]
Kinase Assay	Enzyme assay is conducted in buffer containing 25 mM Tris, pH 8.0, 1 mM DTT, 1 mM spermine, 50 mM KCl, 0.01% Nonidet P-40, and 1 mM MgCl2. PARP reaction contains 0.1 μCi [3H]NAD+ (200?000 DPM), 1.5 μM NAD+, 150 nM biotinylated NAD+, 1 μg/mL activated calf thymus, and 1?5 nM PARP-1. Autoreactions utilizing SPA bead-based

Kinase Assay	detection are carried out in 50 μL volumes in white 96-well plates. Compounds (e.g., MK-4827) are prepared in 11-point serial dilution in 96-well plate, 5 μL/well in 5% DMSO/Water (10× concentrated). Reactions are initiated by adding first 35 μL of PARP-1 enzyme in buffer and incubating for 5 min at room temperature and then 10 μL of NAD+ and DNA substrate mixture. After 3 h at room temperature, these reactions are terminated by the addition of 50 μL of streptavidin-SPA beads (2.5 mg/mL in 200 mM EDTA, pH 8). After 5 min, they are counted using a TopCount microplate scintillation counter. IC50 data is determined from inhibition curves at various substrate concentrations[1].
Cell Research	Caspase inhibitors are added at the indicated concentrations 30 minutes prior to the addition of apoptotic stimuli. Viability and cell number are determined by trypan blue exclusion from three random fields of greater than 200 cells/field. All experiments are performed a minimum of three times.(Only for Reference)

Solubility Information

Solubility	Ethanol: 100 mg/mL (194.74 mM),Sonication is recommended. DMSO: 260 mg/mL (506.33 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (9.74 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9474 mL	9.7371 mL	19.4742 mL
5 mM	0.3895 mL	1.9474 mL	3.8948 mL
10 mM	0.1947 mL	0.9737 mL	1.9474 mL
50 mM	0.0389 mL	0.1947 mL	0.3895 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

DeBiasi RL, et al. Caspase inhibition protects against reovirus-induced myocardial injury in vitro and in vivo. J Virol. 2004 Oct;78(20):11040-50.
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Gotorbe C, Segui F, Echavidre W, et al.Exploiting Integrin-αVβ3 to Enhance Radiotherapy Efficacy in Medulloblastoma via Ferroptosis.Current Oncology.2024, 31(11): 7390-7402.
Laforge M,et al. The anti-caspase inhibitor Q-VD-OPH prevents AIDS disease progression in SIV-infected rhesus macaques. J Clin Invest. 2018 Apr 2;128(4):1627-1640.
Melnikov VY, et al. Neutrophil-independent mechanisms of caspase-1- and IL-18-mediated ischemic acute tubular necrosis in mice. J Clin Invest. 2002 Oct;110(8):1083-91.
Rohn TT, et al. Caspase activation in transgenic mice with Alzheimer-like pathology: results from a pilot study utilizing the caspase inhibitor, Q-VD-OPh. Int J Clin Exp Med. 2009 Nov 5;2(4):300-8.
Rohn TT, et al. Int J Clin Exp Med. 2009, 2(4), 300-308.