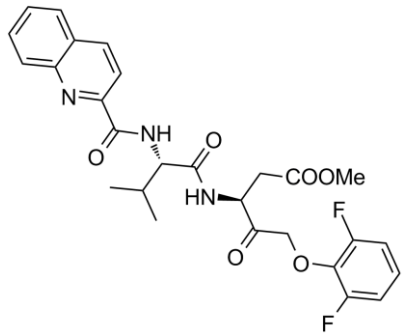
Product Name: Q-VD(OMe)-OPh

Revision Date: 6/30/2016

Product Data Sheet

Chemical Properties



Product Name: Q-VD(OMe)-OPh

Cas No.:

M.Wt: 527

Formula: C26H25F2N3O6

Synonyms: Q-VD(OMe)-OPh

Chemical Name: (S)-methyl 5-(2,6-difluorophenoxy)-3-((S)-3-methyl-2-(quinoline-2-carboxamido)butanamido)-4-oxopentanoate

Canonical SMILES: O=C(N[C@@H](C(C)C)C(N[C@@H](CC(OC)=O)C(COC1=C(F)C=CC=C1F)=O)=O)C2=NC3=CC=CC=C3C=C2

Solubility: >26.4mg/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.

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

Biological Activity

Targets : Caspase

Pathways: Apoptosis >> Caspase

Description:

Q-VD-OPh (quinolyl-valyl-O-methylaspartyl-[-2,6-difluorophenoxy]-methyl ketone) is a broad spectrum caspase inhibitor, provides a cost effective, non toxic, and highly specific means of apoptotic inhibition and provides new insight into the design of new inhibitors. [1] It is significantly more effective in preventing apoptosis than the widely used inhibitors, ZVAD-fmk

and Boc-D-fmk. Q-VD-OPh is also equally effective in preventing apoptosis mediated by the three major apoptotic pathways, caspase 9/3, caspase 8/10, and caspase 12. In addition to the increased effectiveness, Q-VD-OPh was not toxic to cells, even at high concentrations. Q-VD-OPh is equally effective at inhibiting the three major apoptotic pathways, it can inhibit recombinant caspases 1, 3, 8, and 9 with IC50 values ranging from 25 to 400 nM2. The effectiveness of Q-VD-OPh as an apoptotic inhibitor is evidenced by the complete suppression of an apoptotic inducer capable of inducing substantial cell death in less than 4 hours. [2] Q-VD-OPh protected against the substantial apoptosis induced by actinomycin D. In addition, Q-VD-OPh alone exhibited little or no toxicity, even at extremely high concentrations.

***Reference**:*

1. T. M. Caserta, A. N. Smith, A. D. Gultice, M. A. Reedy and T. L. Brown, Q-VD-OPh, a broad spectrum caspase inhibitor with potent antiapoptotic properties, Apoptosis 2003; 8: 345–352
Yin XM. Signal transduction mediated by Bid, a pro-death Bcl-2 family proteins, connects the death receptor and mitochondria apoptosis pathways. Cell Res 2000; 10: 161–167

Protocol

Cell experiment:

Cell lines	The mouse immature B cell WEHI 231 immature cell lines
Preparation method	The solubility of this compound in DMSO is >10 mM. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.
Reacting conditions	4 h; 50 μg/mL
Applications	To analyze the effects of broad spectrum caspase inhibitors on actinomycin D-induced apoptosis in WEHI 231 cells, DNA fragmentation was analyzed after 4 h, when substantial apoptosis, in the absence of caspase inhibitors, had occurred. Incubation with decreasing doses of or Q-VD-OPh in the presence of 1μg/ml actinomycin D indicated that the compound exhibited a dose dependent inhibition of apoptosis.

Animal experiment [3]:

Animal models	P7 rats
Dosage form	1 mg/kg; intraperitoneal injection.
Applications	Q-VD-OPh attenuates brain injury after neonatal stroke. P7 rats

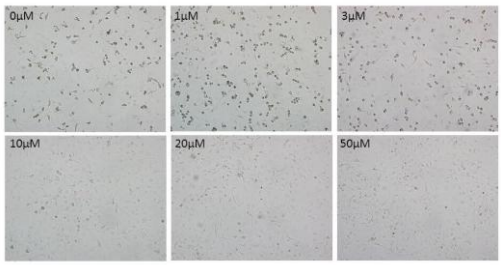
	underwent electrocoagulation of the left middle cerebral artery and transient homolateral common carotid artery occlusion for 50 min followed by 48 h of recovery. A single injection of Q-VD-OPh significantly reduced by 48% the infarct volume as compared with control ischaemic animals (12.6 ± 2.8, n=16, p=0.006) and no rat died. Q-VD-OPh also induced a clear decrease in the number of TUNEL-positive cells versus vehicle-treated animals.
Other notes	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

***Reference**:*
[1] Caserta T M, Smith A N, Gultice A D, et al. Q-VD-OPh, a broad spectrum caspase inhibitor with potent antiapoptotic properties[J]. Apoptosis, 2003, 8(4): 345-352.
[2] Renolleau S, Fau S, Goyenvalle C, et al. Specific caspase inhibitor Q - VD - OPh prevents neonatal stroke in P7 rat: a role for gender[J]. Journal of neurochemistry, 2007, 100(4): 1062-1071.

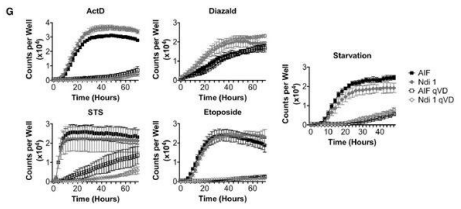
Product Citations

1. Rodriguez, D. A., et al. "Characterization of RIPK3-mediated phosphorylation of the activation loop of MLKL during necroptosis." Cell Death & Differentiation (2015). PMID:26024392
2. Milasta S, Dillon CP, et al. "Apoptosis-Inducing-Factor-Dependent Mitochondrial Function Is Required for T Cell but Not B Cell Function." Immunity. 2016 Jan 19;44(1):88-102. PMID:26795252

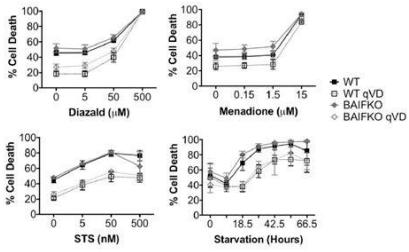
Product Validation



Q-VD-Oph Rescued Cisplatin Induced Cell Death
HEY cells were pre-incubated with Q-VD-Oph for 3 hrs and then treated with 20 μM Cisplatin for 48 hrs



Aif-deficient MEF reconstituted with Ndi1 displayed normal susceptibility to apoptosis. AIF KO MEF stably expressing WT AIF or Ndi1 after at least 4 weeks of 4-OHT treatment were treated with STS (1 mM), ActD (1 mM), etoposide (200 mM), diazald (500 mM), or serum withdrawal (Starvation) in the absence or presence of



qVD-oph (40 mM) and cell death assessed. Immunity. 2016 Jan 19;44(1):88-102.

Naive Aifflox/y Cd19-Cre LSL-YFP and WT B cells displayed equivalent susceptibility to cell death induced by STS, menadione, and diazald, as well as in response to serum withdrawal
following activation with LPS. The presence of qVD-oph delayed cell death in each case, but the ensuing death was unaffected by AIF deletion. AIF WT and AIF KO B cells were treated with the indicated stimuli in the absence or presence of qVD-oph and stained with 7AAD to determine cell death by FACS. All treatments were for seven hrs apart from serum withdrawal (Starvation), which was carried out over a period of 70 hr. Immunity. 2016 Jan 19;44(1):88-102.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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