Product Data Sheet

Product Name: Q-VD(OMe)-OPh
Cat. No.: GC11713

Chemical Properties

Cas. No.			
Chemical Name	(S)-methyl 5-(2,6-difluorophenoxy)-3-((S)-3-methyl-2-(quinoline-2-carboxamido)butanamido)-4-oxopentanoate		
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		
Formula	$C_{26}H_{25}F_2N_3O_6$	M.Wt	527
Solubility	≥ 26.35mg/mL in DMSO, ≥ 97.4 mg/mL in EtOH	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Q-VD(OMe)-OPh		

Protocol

Cell experiment [1]:

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.

Caution: Product has not been fully validated for medical applications. For research use only.
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Reaction 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 [2]:

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.

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References:

[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.

Background

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.

Ref:

1. 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
2. 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