# Product Datasheet

## Q-VD-OPH Inhibitor Peptide
## NBP2-29391

Unit Size: 1 mg

Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

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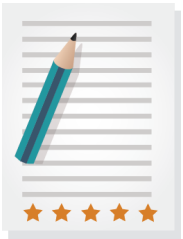

# NBP2-29391

Q-VD-OPH Inhibitor Peptide

| Product Information | |
|---|---|
| **Unit Size** | 1 mg |
| **Concentration** | Concentration is not relevant for this product. Please see the protocols for proper use of this product. |
| **Storage** | Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles. |
| **Reconstitution Instructions** | Form : Off-white Solid: Make a stock solution of 10 mM in high purity DMSO (>99.9%). Add 195 uL DMSO to 1 mg of the pan caspase inhibitor (Q-VD-OPH peptide) to make a 10 mM stock solution. |

| Product Description | |
|---|---|
| **Species** | Human |
| **Reactivity Notes** | Human reactivity reported in scientific literature (PMID: 24068677) |
| **Immunogen** | Q-VD-OPH is a cell permeable caspase peptide inhibitor. Caspase inhibitors irreversibly bind to the catalytic site of caspase proteases and inhibit apoptosis. Caspase inhibitors may be broad spectrum, inhibiting multiple caspases, or may preferentially inhibit particular caspases. Z-VAD-FMK, BOC-D-FMK, and Q-VD-OPH are examples of broad spectrum or pan caspase inhibitors. In contrast Z-DEVD-FMK preferentially inhibits caspases 3 and 7, Z-IETD-FMK preferentially inhibits caspase 8, Z-LEHD-FMK preferentiailly inhibits caspase 9. Z-FA-FMK is considered to be a negative control for FMK based caspase inhibitors. |
| **Details of Functionality** | Mass Spec: M+1=514.1<br>Chromatography: TLC:Rf: 0.4 Single Spot, EtOAC:6, ACOH:0.1<br>H NMR: All functional groups are present |
| **Inhibitor Family** | Caspase |
| **Inhibitor Target** | pan Caspase |
| **Inhibitor Content** | Q-Val-Asp(non-omethylated)-OPH, also known as Q-VD(non-omethylated)-OPH. Molecular Weight: 513 |

| Product Application Details | |
|---|---|
| **Applications** | Functional, In vitro assay |
| **Recommended Dilutions** | Functional, In vitro assay |
| **Application Notes** | Q-VD-OPH is a novel, irreversible, pan caspase inhibitor specifically designed for in vivo and in vitro research. Q-VD-OPH is widely cited in the literature, and researchers should refer to the literature for additional information about the various species that Q-VD-OPH has been used for.For in vitro applications, Q-VD-OPH is typically used at final working concentration of 10-100 uM. The variability depends on model system, including cell type, culture, properties, and type of apoptosis induction treatments. Each researcher should empirically establish optimal working concentrations for their in vitro model system.<br>For in vivo applications, the recommended dose of Q-VD-OPh is 20 mg/kg. The caspase inhibitor is administered IP in 80-100% DMSO. Doses of up to 120 mg/kg have been used in mice without toxic effects (Melnikov and Vyacheslav, 2002; Patil and Sharma, 2004). Each researcher should empirically establish optimal doses for their animal model system. Use in functional reported in scientific literature (PMID: 24068677) |

## Publications

MUller, I, Strozyk, E Et al. Cancer Cells Employ Nuclear Caspase-8 to Overcome the p53-Dependent G2/M Checkpoint through Cleavage of USP28. Mol Cell 2020-03-05 [PMID: 31982308]

Del Mistro G, Riemann S, Schindler S et al. Focal adhesion kinase plays a dual role in TRAIL resistance and metastatic outgrowth of malignant melanoma Cell death & disease 2022-01-12 [PMID: 35022419] (In vitro)

Green SE, Luczak MW, Morse JL et al. Uptake, p53 Pathway Activation, and Cytotoxic Responses for Co(II) and Ni (II) in Human Lung Cells: Implications for Carcinogenicity. Toxicol Sci 2013-12-01 [PMID: 24068677] (Func, Human)

Patil K, Sharma SC. Broad spectrum caspase inhibitor rescues retinal ganglion cells after ischemia. Neuroreport. 2004-04-29 [PMID: 15076719]

Melnikov VY, Faubel S, Siegmund B et al. Neutrophil-independent mechanisms of caspase-1- and IL-18-mediated ischemic acute tubular necrosis in mice. J Clin Invest. 2002-10-01 [PMID: 12393844]

Details:
This publication cites OPH-001, a first generation QV-D-OPH compound. OPH-001 was synthesized as methylated Q-VD(OMe)-OPH, and then reformulated into non-methylated Q-VD-OPH, a white solid (IMI-2309). Q-VD-OPH was overall superior to OPH-001, performing b

Arnold R, Frey CR, Muller W et al. Sustained JNK signaling by proteolytically processed HPK1 mediates IL-3 independent survival during monocytic differentiation. Cell Death Differ. 2007-03-01 [PMID: 17024227]

Details:
Inhibition of caspase activity with Q-VD-OPH reduced monocyte differentiation in primary mouse progenitor cells. Q-VD-OPH was used at 5 um.

Brenner D, Golks A, Becker M et al. Caspase-cleaved HPK1 induces CD95L-independent activation-induced cell death in T and B lymphocytes. Blood. 2007-12-01 [PMID: 17712048] (Mouse)

Details:
Inhibition of apoptosis (primary mouse T cells), Fig. 2 D,E. Q-VD-OPH was used at 20uM to 80uM.

Ekert PG, Jabbour AM, Manoharan A et al. Cell death provoked by loss of interleukin-3 signaling is independent of Bad, Bim, and PI3 kinase, but depends in part on Puma. Blood. 2006-09-01 [PMID: 16705087]

Details:
Inhibition of caspase activity (IL-3-dependent mouse cell lines), Fig. 2B. Q-VD-Z-OPH was used at 10mM and 100uM.

Gurfinkel DM, Chow S, Hurren R et al. Disruption of the endoplasmic reticulum and increases in cytoplasmic calcium are early events in cell death induced by the natural triterpenoid Asiatic acid. Apoptosis. 2006-09-01 [PMID: 16820960]

Details:
Inhibition of apoptosis (Asiatic acid-treated PPC-1 prostate cells), Q-VD-OPH was used at 10 and 100 um.

Caserta TM, Smith AN, Gultice AD et al. Q-VD-OPh, a broad spectrum caspase inhibitor with potent antiapoptotic properties. Apoptosis. 2003-08-01 [PMID: 12815277] (WB)

Details:
Inhibition of Actinomycin D or TGF beta induced apoptosis in WEHI 231 mouse cells, human Jurkat, or rat HRP-1 (trophoblast) cells: 1. BOC-D-FMK (IMI-2311): Fig 1 (gel analysis of DNA laddering) 2. Z-VAD-FMK (IMI-2310): Fig 1 (gel analysis of DNA laddering) 3. Q-VD-OPH (IMI-2309): Figs 1, 4, 5, 7 (gel analysis of DNA laddering), Figs 2, 3 (TUNEL assay by flow cytometry), Fig 6 (WB analysis of PARP cleavage), Fig 8 (WB analysis of Caspase-3, Caspase-8, and Caspase-9 cleavage) Note: Q-VD-OPH was extensively characterized in this publication and shown to inhibit the major features of apoptosis including caspase activation, DNA laddering, and caspase substrate cleavage.

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