PRODUCT DATA SHEET

Product: Q-VD-OPH (*in vivo* Caspase Inhibitor)

Cat. No.: **AB-028 (5 mg)**

Description:
The novel Q-VD-OPH (Quinoline-Val-Asp-CH_2-OPh) compound is an irreversible caspase inhibitor specifically designed for animal *in vivo* research. The Q-VD-OPH irreversibly binds to activated caspases to block apoptosis. Q-VD-OPH penetrates the blood-brain barrier. The "OPH" trap with its superior potency, proven cell permeability and minimal toxicity provides an exceptional alternative to the fluoromethyl ketone family of inhibitors. The improvements derive from significant changes in structural design and replacement of the putatively toxic fluoromethyl ketone (FMK) with the non-toxic 2,6-difluorophenoxy (OPH) group. The mechanism of action involves the formation of an irreversible thioether bond between the aspartic acid derivative in the inhibitor and the active site cysteine of the caspase with the displacement of the 2,6-difluorophenoxy leaving group.

The "OPH" trap features:
- Non-toxic: A preliminary study showed no evidence of toxicity in mice injected with >1,000 mg/kg
- Potency: IC_{50} values against purified caspases are in the nanomolar range; over 90% inhibition of apoptosis when used in an *in vitro* cell-based assay

Applications
- Inhibition: Broad-spectrum caspase inhibitor. Inhibits caspases 1, 3, 8, and 9 with IC_{50} values ranging from 25 to 400 nM.
- Effective *in vitro* at 10-20 µM. For tissue culture studies 10 mM or 20 mM stock solutions are prepared in DMSO and diluted 1:1,000 directly into the tissue culture medium.
- For animal *in vivo* studies: recommend a dose of 20 mg/kg. Q-VD-OPH has been administered intraperitoneally (IP) in 80% - 100% DMSO to assure solubility.

The optimal dilution for a specific application should be determined by the researcher.

Molecular Weight:
513

Form:
White solid.

Purity:
> 95%

Solubility:
Soluble in DMSO (stock solutions in DMSO up to 200 mg/mL may be prepared). For solubility in water at concentrations above 1 mg/mL, 80% DMSO is suggested. Solubility may be improved in the presence of carrier proteins such as albumin or whole serum. A concentration of 0.5 mg/mL in serum has been shown to be obtained by direct dilution (1:400) of DMSO stock solution of 200 mg/mL Q-VD-OPH.

Preparation:
Prepare desired concentrated stocks solutions as follows:
For each mg of Q-VD-OPH
20 mM – add 97 µL DMSO.
10 mM – add 194 µL DMSO.
5 mM – add 388 µL DMSO.

Storage and Stability:
Stable at least 3 years when kept desiccated at -20℃. DMSO solution is stable for 6-8 months at -20℃. Keep sealed after removing from the freezer until the temperature of the vial equilibrates with room temperature.

Limitations:
For research use only. Not for use in diagnostics or in humans.

Warranty:
No warranties, expressed or implied, are made regarding the use of this product. KAMIYA BIOMEDICAL COMPANY is not liable for any damage, personal injury, or economic loss caused by this product.