PRODUCT DATA SHEET

Product: Z-VDVAD-FMK (Caspase-2, -3 Inhibitor)

Cat. No.: **AB-008 (3 mg)**

Chemical Name:
Z-Val-Asp(OMe)-Val-Ala-Asp(OMe)-CH_2F

Molecular Weight:
695

Description:
Peptide-fluoromethyl ketone inhibitor of caspases 2 and 3.

The FMK (fluoromethyl ketone, CH_2F) inhibitor has several advantages over other types of derivatives: Penetrates cell membranes, is non-toxic to cells, irreversible inhibition.

Introduction:
Caspase-2 (also known as ICH-1) is a member of the caspase family of cysteine proteases involved in apoptosis. It is a member of the Group II caspases, along with caspase-3 and -7. Group II caspases prefer peptides of the DEXD-type as substrates. However, unlike caspase-3 and -7, caspase-2 requires a P5 amino acid in the peptide for efficient cleavage. The similar substrate specificities of the Group II caspases suggests that their roles in cells are at least overlapping, if not completely redundant. The requirement for a fifth amino acid in substrates for caspase-2 means that inhibitors of the DEVD-type, while inhibiting caspase-3 and -7, would have little effect on caspase-2 activity. For this reason, the Z-VDVAD-FMK inhibitor is excellent for studying the role of caspase-2 in apoptosis.

Specificity:
Specifically inhibits caspase-2 and to a lesser degree caspase-3. Also shows some inhibition of caspase-7.

Solubility:
Soluble in DMSO

Protocol:
Dissolve Caspase-2, -3 Inhibitor in high purity (>99.9%) DMSO before use.

For use on intact cells:
1. Prepare desired concentrated stock solutions as follows:
   3 mg Z-VDVAD-FMK
   in 432 µL DMSO = 10 mM
2. Adding 2 µL of a 10 mM stock solution to 1 mL of culture medium gives a final Z-VDVAD-FMK concentration of 20 µM. Effective final concentrations are estimated to be 5-20 µM. Note: Levels of DMSO above 0.2% may cause some cellular toxicity in culture medium, thus masking the effect of the protease inhibitor.

IMPORTANT NOTE for *in vitro* use: Our peptide inhibitors are synthesized as methyl esters to enhance cell permeability. In intact cells, the methyl groups are removed by endogenous enzymes. For *in vitro* experiments with purified enzymes, however, the methyl groups must first be removed by treating the inhibitor with esterase. A procedure is available upon request.

Storage and Stability:
Solid product has a shelf life of up to 1 year if stored desiccated at room temperture. However, for long term storage, desiccated at 4°C is recommended. DMSO stock solutions have a shelf life of 6-8 months at –20°C if care is taken by choosing DMSO with maximum dryness (>99.9%). 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.