PRODUCT DATA SHEET

Product: Z-DEVD-FMK (Caspase-3(CPP32) Inhibitor)

Cat. No.: AB-003 (5 mg)

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

Molecular Weight:
668

Formula:
$C_{30}H_{41}O_{12}N_4F$

Description:
Irreversible and cell permeable inhibitor of caspase-3 (CPP32, Apopain), a member of the CIE/CED-3 family of cysteine proteases.

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

Introduction:
Caspase-3 is a member of the cysteine proteases family involved in apoptosis induction. All apoptotic pathways studied to date involve proteolytic activation of caspase-3 as a central event in the progression of cell death. Although the death-inducing consequences of caspase-3 activation have not been conclusively established, several crucial substrates for the protease have been identified *in vitro*, including DNA-dependent protein kinase, Poly(ADP-ribose) Polymerase (PARP), Replication factor C, and Gelsolin. These substrates are involved in the later stages of apoptosis, strongly suggesting that caspase-3 has a key role in promoting the final processes leading to cell death.

Form:
Off-white solid

Applications:
Inhibition of caspase-3, -7, -1, -4, -8, and -10 activities. For caspase-3 fluorometric assays using the Caspase-3 Fluorogenic Substrate (Cat. No. AC-003), Caspase-3(CPP32) Inhibitor can be used to assess the contribution of contaminating proteases to the overall rate of proteolysis.

Protocol:
Dissolve the Caspase-3(CPP32) Inhibitor in high purity DMSO (>99.9%) before use to make a stock solution of 20 mM.

For use on intact cells:

1. Prepare desired concentrated stock solutions as follows:
   5 mg Z-DEVD-FMK
   in 375 µL DMSO = 20 mM
   in 750 µL DMSO = 10 mM
   in 1,500 µL DMSO = 5 mM, etc.
2. Adding 2 µL of the above stock solutions to 1 mL of culture medium containing cells gives a final DMSO concentration of 0.2%. Adding 2 µL of a 10 mM stock solution to 1 mL of culture medium gives a final Z-DEVD-FMK concentration of 20 µM.
   Note: Levels of DMSO above 0.2% may cause some cellular toxicity, thus masking the effect of the protease inhibitor.

For extended *in vitro* and *in vivo* use:
For experiments extending 12 to 48 hours, fresh inhibitor may have to be added (injected) due to inactivation of the inhibitor by endogenous cysteine proteases.

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:
Solid product is stable for up to 3 years when stored in a desiccator at room temperature. For long-term, -20℃ is recommended. DMSO stock solutions have a shelf-life of 6-8 months when stored at -20℃. Keep sealed after removing from the freezer until its temperature equilibrates with room temperature.

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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.