

PRODUCT DATA SHEET

Product: Z-YVAD-FMK (Caspase-1 / ICE Inhibitor 2)

Cat. No.: AB-011 (3 mg)

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Chemical Name:

Z-Tyr-Val-Ala-Asp(OMe)-CH₂F

Molecular Weight:

630

Formula:

C₃₁H₃₉N₄O₉F

Description:

Peptide-fluoromethyl ketone inhibitor of Caspases-1 and -4.

The CH₂F (fluoromethyl ketone) inhibitor has several advantages over other types of derivatives: Penetrates cell membranes, Not toxic to cells, Irreversible inhibition.

Introduction:

Interleukin-1 β Converting Enzyme (ICE), also now known as Caspase-1, is a cytoplasmic cysteine protease that cleaves inactive 31 kDa pro-IL-1 β to generate the active 17.5 kDa proinflammatory cytokine IL-1 β , the predominant form of IL-1 produced by human monocytes. This cytokine has been implicated in the pathogenesis of several diseases such as rheumatoid arthritis, inflammatory bowel disease, and septic shock.

Caspase-1/ICE mRNA is found in a variety of cells such as peripheral blood monocytes, peripheral blood lymphocytes, peripheral blood neutrophils, and resting and activated peripheral blood T-lymphocytes. The tissue distribution of Caspase-1/ICE suggests that the enzyme may have other substrates in addition to IL-1 β .

Current hypotheses suggest that Caspase-1/ICE is able to cause apoptosis as well as activate inflammation in animal cells. Experiments have shown that Caspase-1/ICE has sequence homology with other mammalian apoptosis genes and that activation of Caspase-1/ICE or other caspase proteases is required for anti-Fas mAb-induced apoptosis.

Specificity:

Strong inhibition of Caspase-1/ICE and weak inhibition of Caspase-4. No inhibition of Caspases-2, -3, -6, or -7.

Form:

Off white solid

Protocol:

Dissolve the Caspase-1/ICE Inhibitor 2 in high purity (>99.9%) DMSO before use to make a stock solution of 20 mM.

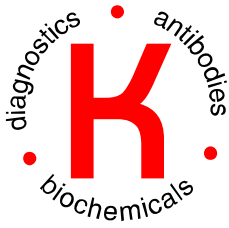
For use on intact cells:

1. Prepare stock solutions as follows:
5 mg Z-YVAD-FMK in 794 μ L DMSO = 10 mM
3 mg Z-YVAD-FMK in 476 μ L DMSO = 10 mM
1 mg Z-YVAD-FMK in 159 μ L DMSO = 10 mM
2. Add 2 μ L of 10 mM stock solution to 1 mL culture medium containing cells such that the final DMSO concentration is 0.2%. Levels of DMSO above this may cause some cellular toxicity, thus masking the effect of the ICE-protease inhibitors. Adding 2 μ L of a 10 mM stock solution to 1 mL of culture medium gives a final Z-YVAD-FMK concentration of 20 μ M. Effective final concentrations are estimated to be 5-20 μ M.

For extended use *in vivo* or *in vitro*:

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.



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Storage:

Z-YVAD-FMK has a shelf-life of up to 3 years if stored desiccated at -20°C. We recommend 4°C storage of DMSO solution. 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 its temperature 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.