



PRODUCT DATA SHEET

Product: Z-WEHD-FMK (CASPASE-1,4,5 INHIBITOR)

Cat. No: AB-009 (1 mg)

Chemical Name:

Z-Trp-Glu(OMe)-His-Asp(OMe)-CH₂F (TFA salt)

Molecular Weight: 877

Description:

Trifluoroacetic acid salt of the fluoromethyl ketone peptide inhibitor of Caspases-1/ICE, -4, and -5.

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

Introduction:

Caspase-1 (also known as ICE), Caspase-4 (also known as ICE_{rel}-II, TX, or ICH-2), and Caspase-5 (also known as ICE_{rel}-III or TY) make up the Group I caspases, all of which prefer the tetrapeptide substrate sequence WEHD. Although Group I caspases are involved in inflammation through the maturation of pro-IL-1 β There is evidence suggesting that activation of Group I caspases induces apoptosis, although substrate specificity studies do not provide compelling evidence for a role of Group I caspases in apoptosis since hydrophobic amino acids in the P4 position (preferred by Group I) are not observed in proteins cleaved during apoptosis. Most research supports a role for Caspase-1 in inflammation but the roles of Caspase-4 and Caspase-5 have not been established.

Specificity:

Inhibitor of Caspase-1/ICE, Caspase-4, and Caspase-5. Very weak inhibition of Caspase-9. No inhibition of Caspases-2 or -6.

Solubility:

Soluble in DMSO

Protocol:

Dissolve Caspase-1,4,5 Inhibitor in high purity ($\geq 99.9\%$) DMSO before use.

For use on intact cells:

1. Prepare desired concentrated stock solutions as follows:
1 mg Z-WEHD-FMK in 57 μ l DMSO = 20 mM
in 114 μ l DMSO = 10 mM
in 228 μ l DMSO = 5 mM, etc.
2. Add 2 μ l of 10 mM stock solution to 1 ml culture medium containing cells such that the final concentration of DMSO is 0.2%. Levels of DMSO above this may cause some cellular toxicity, thus masking the effect of the Caspase-1,4,5 protease inhibitor. Adding 2 μ l of a 10 mM stock solution to 1 ml of culture medium gives a final final Z-WEHD-FMK concentration of 20 μ M. Typical final concentrations of inhibitor are 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.

Storage and Stability:

Solid product is stable for 1 year when stored in a desiccator at room temperature. For long-term, 4°C is recommended. DMSO stock solutions have a shelf life of 6-8 months when stored at -20°C.

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.