



PRODUCT DATA SHEET

Product: Z-FA-FMK (Cathepsin B Inhibitor)

Cat. No.: AE-001 (5 mg)

Chemical Name:

Z-Phe-Ala-CH₂F

Molecular Weight:

386

Form:

White solid

Description:

Fluoromethyl ketone peptide inhibitor of cathepsin B (caspase inhibitor negative control). The CH₂F (fluoromethyl ketone) inhibitor has several advantages over other types of derivatives: Penetrates cell membranes, is non-toxic to cells, irreversible inhibition.

Introduction:

The caspases are involved in the proteolytic cascade that results in apoptosis and in the maturation process of IL-1 β necessary for inflammation. The increasing number of FMK-type inhibitors for various caspases require an FMK-type inhibitor that does not affect caspases as a negative control. The Cathepsin B Inhibitor does not inhibit the activity of caspases in intact cells and does not block the induction of apoptosis as caspase inhibitors do. It can, therefore, be used as a negative control for the FMK moiety of any caspase inhibitor, both *in vivo* and *in vitro*.

Specificity:

Specifically binds to and inhibits various cysteine proteases (those not requiring P₁ Asp) such as cathepsin B. Does not bind to or inhibit any of the caspases.

Applications:

Irreversible inhibition of various cysteine proteases and serves as a negative control in studies using the FMK-containing caspase inhibitors. Exact concentration should be determined by the researcher.

Protocol:

Dissolve Cathepsin B Inhibitor in high purity (>99.9%) DMSO before use.

For use on intact cells:

1. Prepare concentrated stock solution in DMSO as follows:
Dissolve 5 mg Z-FA-FMK in 1,295 μ L DMSO = 10 mM
2. Add 2 μ L of the 10 mM stock solution to 1 mL of culture medium gives a 20 μ M final Z-FA-FMK concentration.

A. Inhibitor of cysteine proteases (non-ICE (caspase) proteases): Irreversible inhibition of various cysteine proteases at an effective concentration of approximately 0.5-10 μ M.

B. Use as a Negative Control for ICE-(caspase) proteases: Effective final concentrations of the Caspase FMK Inhibitors are estimated to be 5-20 μ M. Use of Z-FA-FMK as a "Negative Control Inhibitor" should be in the same range.

Note: Levels of DMSO above 0.2% may cause some cellular toxicity in culture medium, thus masking the effect of the protease inhibitor.

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.

Storage and Stability:

Store Cathepsin B Inhibitor in a desiccator at room temperature or 4°C. Suggested long term storage is desiccated at 4°C. DMSO stock solutions have a shelf-life of 1 year if stored at -20°C. Keep sealed after removing from freezer until vial temperature has equilibrated to 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.