Product Data Sheet

Chemical Properties

Product Name: Z-YVAD-FMK
Cas No.: N/A
M.Wt: 630.66
Formula: C31H39FN4O9
Synonyms: N/A
Chemical Name: (8S,11S,14S)-methyl 14-(2-fluoroacetyl)-5-(4-hydroxybenzyl)-8-isopropyl-11-methyl-3,6,9,12-tetraoxo-1-phenyl-2-oxa-4,7,10,13-tetraazahexadecan-16-oate
Canonical SMILES: COC[C@H]([NC([C@H])(C)NC([C@H])(NC(C(CC1=CC=C(O)C=C1)NC(OCC2=CC=C(C2)=O)=O)C(C)C=O)C(C)C=O)C(CF)=O]=O
Solubility: $\geq$31.55mg/mL in DMSO
Storage: Store at -20°C
General tips: For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: Apoptosis
Pathways: Caspase
Description:
Z-YVAD-FMK is a potent cell-permeable and irreversible inhibitor of caspase-1. In Caco-2 cells, Z-YVAD-FMK significantly decreased the growth inhibition induced by butyrate. Complete abrogation of butyrate’s effect occurred at an inhibitor concentration of 100 mol/L. It is indicated that caspase-1 inhibitor significantly alters the caspase cascade, diminishing the
butyrate-induced apoptotic effect [1]. After treated with Alum reflected caspase-1 activation, IL-1-release in cells was blocked by Z-YVAD-FMK. This effect was observed even in MyD88-deficient bone marrow DC [2].

Reference:

Protocol

Cell experiment:

Cell lines Caco-2 (ATCC Number HTB-37)
Preparation method Limited solubility. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20 °C for several months.
Reacting conditions 48 h
Applications Z-YVAD-FMK significantly downregulates the growth inhibition induced by butyrate in Caco-2 Cells. Complete abrogation of butyrate’s effect occurs at an inhibitor concentration of 100 μmol/L, indicating that caspase-1 inhibitor significantly alters the caspase cascade, diminishing the butyrate-induced apoptotic effect.

Animal experiment [3]:

Animal models Albino Wistar rats
Dosage form Rats were injected intravenously (2 μL) with caspase inhibitor Z-VAD-FMK (1.06 mM in 2% DMSO)
Applications Immediately before exposure to damaging light, YVAD significantly reduces caspase-1 activity to 51% ± 34% but has no effect on caspase-3 activity (98% ± 5%). Exposed-YVAD retinas showed caspase-1 activities of 66% ± 33%, respectively. These values were significantly (P < 0.02 and P < 0.004, respectively) lower than in the Exposed-DMSO group.
Other notes Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused
by an experimental system error and it is normal.

Reference:

Product Citations
2. Fanfan Xu, Xinghua Qiu, et al. "Effects on IL-1b signaling activation induced by water and organic extracts of fine particulate matter (PM2.5) in vitro" Environmental Pollution 237 (2018) 592e600.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.