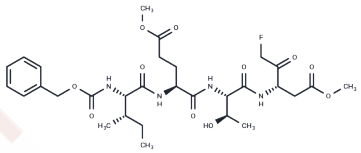
Data Sheet (Cat.No.T7019)

TargetMol

Z-IETD-FMK

Chemical Properties



CAS No. : 210344-98-2

Formula: C30H43FN4O11

Molecular Weight: 654.68

Storage: Keep away from direct sunlight,Keep away from moisture,Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Z-IETD-FMK (Z-IE(OMe)TD(OMe)-FMK) is a cell-permeable, irreversible inhibitor specific for caspase-8. Z-IETD-FMK also an inhibitor of granzyme B. Z-IETD-FMK exhibits cell permeability. Z-IETD-FMK can be used in studies of the extrinsic apoptosis pathway, pyroptosis, and programmed necrosis.
Targets(IC50)	Caspase
In vitro	**Methods**: Human PBMCs, purified $CD4^+$ and $CD8^+$ T cells were treated with mitogens (PHA 5 μg/mL) and Z-IETD-FMK (25, 50, 100 μM) for 72 hours. DNA synthesis was detected using the [^{3}H]-thymidine incorporation assay. Cell division was assessed by CFSE dilution flow cytometry. **Results**: Z-IETD-FMK significantly inhibited T cell proliferation at 100 μM. [1] **Methods**: Mouse bone marrow-derived neutrophils were treated with 50 μM Z-IETD-FMK for 24 hours (ELISA); 6-8 hours (qPCR). ELISA measured CXCL1 and IL-1β levels in culture supernatants; qRT-PCR detected IL-1β and TNF-α mRNA. **Results**: Z-IETD-FMK significantly induced neutrophil production of CXCL1 and IL-1β and upregulated their mRNA. [2]
In vivo	**Methods**: C57BL/6 mice were nasally infected with Streptococcus pneumoniae D39 or carbapenem-resistant Klebsiella pneumoniae. Intravenous administration of Z-IETD-fmk (6 mg/kg) was initiated 24 hours post-infection, administered once daily for 5 consecutive days. **Results**: Z-IETD-fmk treatment significantly improved survival rates (Streptococcus pneumoniae: control group 38% vs. treatment group 88%) and markedly reduced intrapulmonary bacterial load. [2] **Methods**: Adult male SD rats underwent SAH modeling via intravascular perforation. Z-IETD-FMK (1 mg/kg) was administered via tail vein injection starting 21 days post-SAH and continued until day 27. **Results**: The Z-IETD-FMK treatment group showed significant improvement in impaired spatial learning and memory abilities, as well as reduced motor coordination, indicating its protective effect on long-term neurological function. [3]
Kinase Assay	Proteasome assay: Exponentially growing cells on a 96-well clustered plate are treated with different concentrations of drugs or left untreated (control) for 6 hours. Proteasomes extracted with 0.5% NP40 buffer are mixed with equal amounts of samples

Kinase Assay	in 100 μL total volume, and then incubated with 25 μmol/L of fluorogenic substrates (LRR- specific for trypsin-like activity, LLE-specific for caspase-like activity, and SUVY-specific for chymotrypsin-like activity) in black-bottom 96-well plates at 37°C. Fluorescence is monitored every 5 minutes at the wavelength of 360 nm (excitation) and 480 nm (emission).

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 240 mg/mL (366.59 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (7.64 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.5275 mL	7.6373 mL	15.2746 mL
5 mM	0.3055 mL	1.5275 mL	3.0549 mL
10 mM	0.1527 mL	0.7637 mL	1.5275 mL
50 mM	0.0305 mL	0.1527 mL	0.3055 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Lawrence CP, et al. Suppression of human T cell proliferation by the caspase inhibitors, z-VAD-FMK and z-IETD-FMK is independent of their caspase inhibition properties. Toxicol Appl Pharmacol. 2012 Nov 15;265(1):103-12.
Liu X, Song X, Luan D, et al. Real-time in situ Visualizing the Sequential Activation of Caspase Cascade Using a Multi-color Au-Se Bonding Fluorescent Nanoprobe. Analytical Chemistry. 2019, 91(9): 5994-6002
Hussain M, Lu Y, Tariq M, et al. A small-molecule Skp1 inhibitor elicits cell death by p53-dependent mechanism. Iscience. 2022, 25(7): 104591.
Lentini G, et al. Caspase-8 inhibition improves the outcome of bacterial infections in mice by promoting neutrophil activation. Cell Rep Med. 2023 Jul 18;4(7):101098.
Ke DQ, et al. Target inhibition of caspase-8 alleviates brain damage after subarachnoid hemorrhage. Neural Regen Res. 2020 Jul;15(7):1283-1289. doi: 10.4103/1673-5374.272613. Erratum in: Neural Regen Res. 2020 Nov;15(11):2056.
Shen C H, Wang S C, Lee K M, et al.The Potential Synergistic Effect of Combining Doxorubicin with Vorinostat in Urothelial Carcinoma Therapy.Heliyon.2025
Monnier PP, et al. J Neurosci. 2011, 31(29), 10494-10505.
Liu X, Song X, Luan D, et al. Real-time in situ Visualizing the Sequential Activation of Caspase Cascade Using a Multi-color Au-Se Bonding Fluorescent Nanoprobe[J]. Analytical chemistry. 2019 May 7;91(9):5994-6002.

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481