Product Name: Z-VDVAD-FMK

Revision Date: 6/30/2018

Product Data Sheet

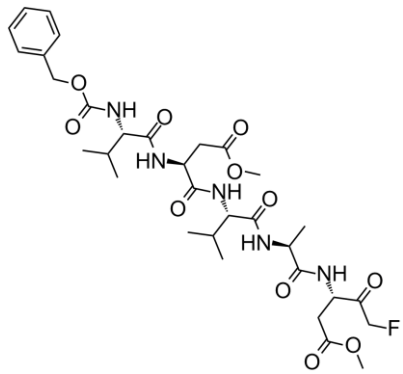
Chemical Properties

Product Name: Z-VDVAD-FMK

Cas No.: N/A

M.Wt: 695.73

Formula: C32H46N5O11F



Synonyms: Z-VDVAD-fluoromethylketone, Caspase-2 Inhibitor (fluoromethylketone),Z-Val-Asp(OMe)-Val-Ala-Asp(OMe)-FMK

Chemical Name: methyl (3S)-5-fluoro-3-[[(2S)-2-[[(2S)-2-[[(2S)-4-methoxy-2-[[(2S)-3-methyl-2-(phenylmethoxycarbonylamino)butanoyl]amino]-4-oxobutanoyl]amino]-3-methylbutanoyl]amino]propanoyl]amino]-4-oxopentanoate

Canonical SMILES: CC(C)C(C(=O)NC(C)C(=O)NC(CC(=O)OC)C(=O)CF)NC(=O)C(CC(=O)OC)NC(=O)C(C(C)C)NC(=O)OCC1=CC=CC=C1

Solubility: ≥34.8mg/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:

Jurkat T-lymphocytes treated with an irreversible caspase-2 inhibitor, benzyloxycarbonyl-Val-Asp(OMe)-Val-Ala-Asp(OMe)-fluoromethyl ketone (Z-VDVAD-FMK), or stably transfected with pro-caspase-2 antisense (Casp-2/AS) are refractory to cytochrome c release stimulated by etoposide1.
When etoposide-induced activation of pro-caspase-2 is subverted by Z-VDVAD-FMK or stable transfection of pro-caspase-2 antisense, cytochrome c release and other manifestations of apoptosis are attenuated.
OxyHb significantly activated both caspase-2 and caspase-3 in bovine brain microvessel endothelial cells. The irreversible caspase inhibitors Z-VDVAD-FMK (caspse-2 inhibitor) and Z-DEVD-FMK (caspase-3 inhibitor) significantly reduced cell detachment, caspase-2 and -3 activities, DNA ladders, and proteolytic cleavage of PARP2. Activation of caspase-2 and caspase-3 is essential for OxyHb induced apoptosis in endothelial cells, and Z-VDVAD-FMK and Z-DEVD-FMK have the potential to protect cells.
The minimal-length inhibitor of caspase-2, Z-VDVAD-fmk, which also inhibits caspases 3 and 73, prevented doxorubicin-induced nuclear apoptosis, but not cell death4.

***Reference**:*

1. J. D. Robertson, M. Enoksson et al. Caspase-2 Acts Upstream of Mitochondria to Promote Cytochrome c Release during Etoposide-induced Apoptosis. The Journal of Biological Chemistry. 277, :29803–29809, 2002
2. T. Meguro, B. Chen et al. Caspase Inhibitors Attenuate Oxyhemoglobin-Induced Apoptosis in Endothelial Cells, Stroke. 2001; 32:561-566.
3. Talanian, R. V., Quinlan, C., Trautz, S., Hackett, M. C., Mankovich, J. A., Banach, D., Ghayur, T., Brady, K. D., and Wong, W. W. (1997). Substrate specificity of caspase family proteases. J. Biol. Chem. 272, 9677–9682.
4. Gamen et al (2000) Doxorubicin treatment activates a Z-VAD-sensitive caspase, which causes Dym loss, caspase-9 activity, and apoptosis in Jurkat cells. Exp.Cell Res. 258 223.

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.

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